

NEW YORK—CLEVELAND—LONDON

Marine Review

THE BUSINESS OF TRANSPORTATION BY WATER

Vol. 52

NOVEMBER, 1922

No. 11

Published Monthly by The Penton Publishing Co., Cleveland, Ohio, U. S. A.

IN THIS ISSUE

	PAGE		PAGE
Waterways Need New Terminals.....	439	Condensed Reviews of New Books.....	459
Editorial.....	444	Approve State Marine Risk Law.....	461
More British Shipping Employed.....	445	Ocean Freight Rates.....	462
Launches Big Tanker.....	448	Trend in Propelling Machinery.....	463
What the British Are Doing.....	449	Famous Naval Ship Dropped from List.....	465
Photographs from Far and Near.....	450	Builds Fur Carrier for Hudson Bay Trade.....	467
Late Decisions in Maritime Law.....	452	Launch Big Ore Freighter.....	469
Is Subsidy the Real Solution III.....	453	Activities in the Marine Trade.....	470
Ship Design Expert Joins Harriman..	455	Equipment Used Afloat, Ashore.....	474
Marine Business Statistics Condensed....	456	Business News for the Marine Trade..	476
Late Flashes on Marine Disasters.....	458		

BRANCH OFFICES

BOSTON	-	-	-	426 Old South Bldg.	NEW YORK	-	-	-	220 Broadway
CHICAGO	-	-	-	1147 People's Gas Bldg.	PITTSBURGH	-	-	-	2148-49 Oliver Bldg.
CINCINNATI	-	-	-	501-505 Commercial Tribune Bldg.	SAN FRANCISCO	-	-	-	675 Monadnock Bldg.
WASHINGTON	-	-	-			-	-	-	84 Home Life Bldg.

FOREIGN OFFICES

PARIS, FRANCE	224 Rue de Rivoli	LONDON, ENG.,	2-3 Caxton House, Westminster, S. W. 1.
		BIRMINGHAM, ENG.	Prince's Chambers
			Cable Address IROTRAPEN, London

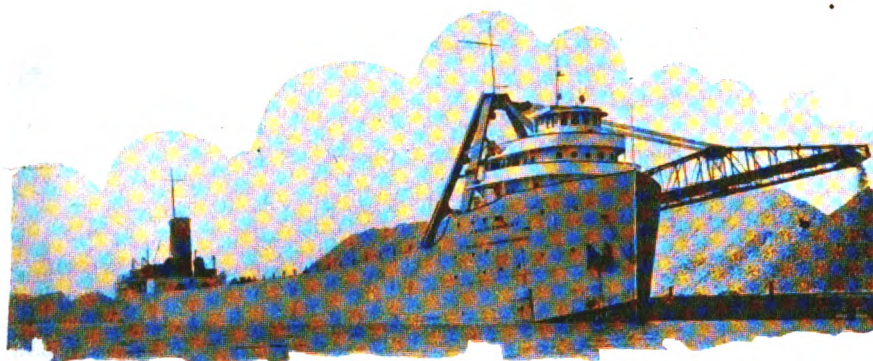
Subscription, United States and its possessions, \$3 per year; Canada and other Foreign Countries, \$4 per year. Single copies 25 cents. Back numbers over three months 50 cents. The Cleveland News Co. will supply the trade with MARINE REVIEW through the regular channels of the American News Co., European Agent, The International News Co., Brems building, Chancery Lane, London, E. C., England.

Member, the Audit Bureau of Circulations, Associated Business Papers, Inc. and the National Publishers Association
Entered at the Post Office at Cleveland, Ohio, as Second Class Matter, under the act of March 3, 1879
Copyright 1922 by The Penton Publishing Co.

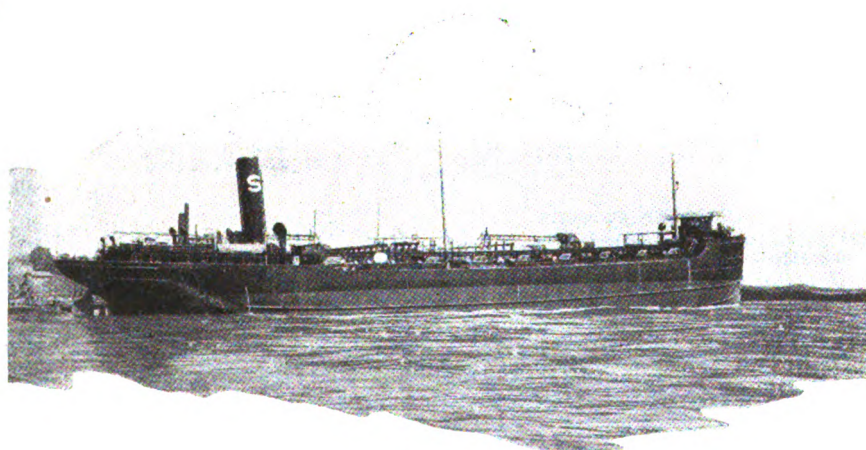
The American Corn



Bulk Freighter
"H. H. PORTER"



Self Unloading Bulk Freighter
"CARL D. BRADLEY"



Oil Tanker
"W. P. COWAN"

These illustrations represent three of the different types of Lake Cargo Freighters which have been built by this Company in the past few years.



**CONSTRUCTION
PLANTS**
AT
DETROIT, MICH.
**WYANDOTTE,
MICH.**
CLEVELAND, OHIO
LORAIN, OHIO

Please mention MARINE REVIEW when writing to Advertisers

Shipbuilding

Ship operation

Ship maintenance

Marine Review

NEW YORK

CLEVELAND

LONDON

VOL. 52

NOVEMBER, 1922

No. 11

Waterways Need New Terminals

Barge Canals and Rivers Require Dock Facilities If
Inland Routes Are To Develop—Cranes Are Important

BY GORDON P. GLEASON

Secretary, the Great Lakes-Hudson and Atlantic Waterways Association, Inc.

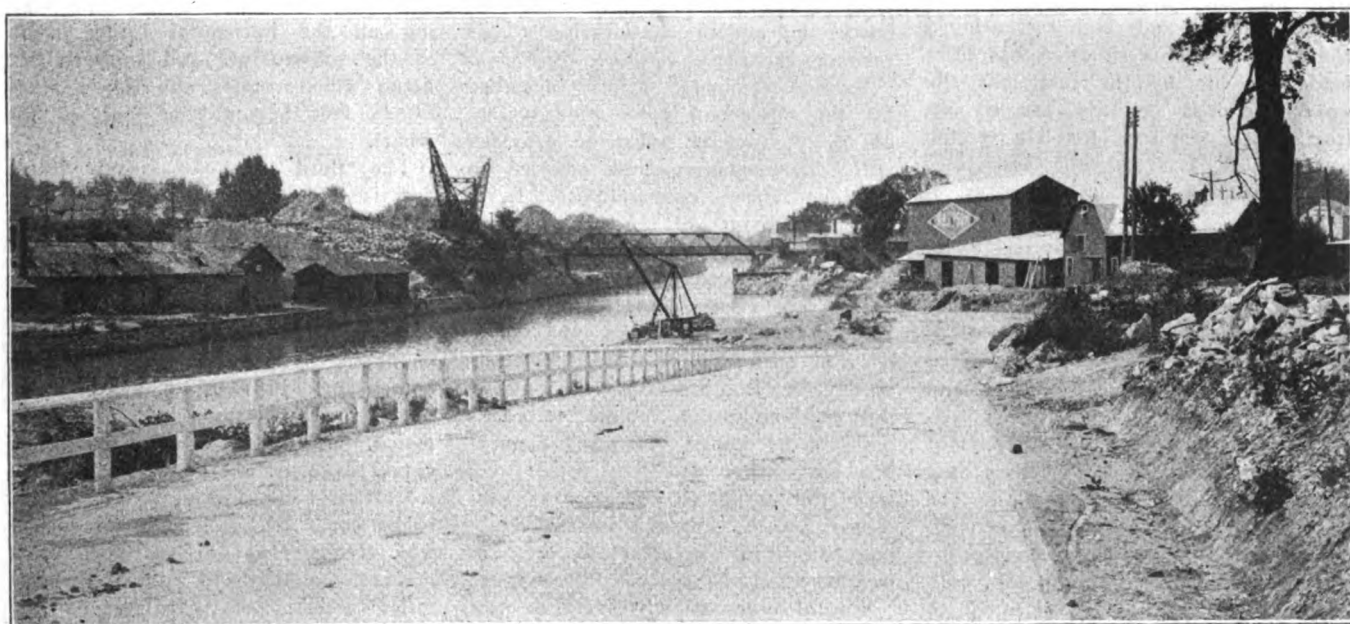
IN PRACTICALLY all projects for the development of American inland waterways, little if any attention has been paid to the important problem of constructing and equipping wharves and piers for the handling of freight. That this should be a prime consideration in such projects can be appreciated when it is considered that the terminal charge is more than double the cartage charge over any route. Prior to the development of modern terminal facilities at Duluth and Cleveland, the transfer charge at these ports was double the carrying charge.

Upon the installation of equipment to handle the grain, ore and coal cargoes in these ports, the transfer charge was reduced so that it equalled the carrying charge.

Water carriers offer the shipper a differential of from 20 to 40 per cent and improved channels permitting the movement of modern barge fleets, each moving as much freight as a train of 50 cars, will permit an average speed of 50 to 100 miles a day as opposed to a speed of 18 and 25 miles a day which is maintained by the freight trains moving such heavy, low grade commodities as

coal, ore, grain, etc. This has been demonstrated on the Great Lakes, and the Mississippi, Ohio and Monongahela rivers, the New York state barge canal and the waterways of continental Europe. With these examples and in view of the growing agitation for the construction of waterways which will relieve the shipper and the rail lines, the subject of water terminals gives promise of becoming a serious problem in the near future.

That America must develop its system of inland waterways goes without saying. The growth of its



APPROACHES ARE AN ALL IMPORTANT ITEM IN TERMINAL DEVELOPMENT. THIS GRADED AND ELABORATELY CONSTRUCTED APPROACH LEADS TO A LOCAL TERMINAL ON THE NEW YORK STATE BARGE CANAL

cities in the industrial north demands an ever increasing supply of raw materials and foodstuffs. During the period of the war the transportation facilities nearly broke down and the country has been warned time and again that this is just an indication of what may happen again in the near future. More than 50 years ago J. J. Hill, the authority on railway matters, said:

"The growth of traffic in the United States has exceeded the growth of facilities for carrying it. The transportation deficit will presently become so great, when business is free to grow unhindered by repressive legislation, that no amount of capital available for new construction or for extensions and improvements can make it good."

More recently it has been estimated that where it would cost upward of \$6,000,000,000 to construct the rail lines that would afford transportation relief it would only cost \$500,000,000 to construct the waterways which would give the same relief.

What Terminals Require

If the United States is to progress, if its cities are to continue to grow, it must have adequate transportation facilities. This means that its waterways, highways and railroads must be utilized and, as continental Europe has solved its problem by the proper co-ordination of its transportation routes, the United States must do likewise. In Germany, France and Belgium the water and rail lines have been so co-ordinated that practically all their bulk freight such as stone, ore and coal are moved by the waterways, leaving the railroads free for the transportation of the more valuable and highly developed commodities. This situation has been made possible by the fact that the water terminal facilities are so attractive to shippers that it is the water lines and not the rail lines which establish the freight rates.

There are four fundamental requirements for all water terminals: (1) good wharves, (2) warehouses and storage facilities, (3) mechanical appliances for transshipment of freight and (4) street and railroad connection with business sections and industrial plants.

The wharf is the all important first consideration. This is the point of contact between the rail and water carriers and its construction is not only an engineering problem but one of economics as well. It must be conveniently located to the business and industrial section of the city and it must be accessible to the rail lines if it is possible to

so locate it, for the shorter the spur line between the main road and the waterway, the more attractive will become the interchange of freight between the two carriers.

The most important item of terminal equipment is the transit shed for the storage of cargo held on the wharf and in transit between the water carrier and the truck or freight car. The sheds should be large enough to hold the freight in transit; space must be provided so that the cargoes may be spread out to allow sorting, and wherever practicable the shed should be so constructed that there will be no posts supporting the roof, thus leaving a clear and unbroken floor space. These sheds may be of either steel, frame or masonry construction. The steel or masonry shed is generally constructed at important shipping points or at the ports while the frame shed is used in places where less frequent use is made of the terminal.

While cargo vessels operating on the oceans are generally provided with their own loading facilities this is not true of lake, river and canal carriers. The reason is that the lake carriers go direct to the elevators and ore or coal docks. The river and canal barges cannot carry high masted derricks because the headroom under the bridges spanning the river or canal is limited. For this reason it is imperative that unloading machinery be set up on the wharves. Freight handling machinery greatly reduces the cost of labor, increases the speed of loading and unloading the boats and hastens the turnaround of the barge, greatly increasing the tonnage a boat can carry and adding considerably to its earning capacity.

Public terminals, being designed for the movement of a wide variety of freight cargoes, must be provided with the machinery best adapted to handling such commodities. It is not the province of the state to construct and operate terminal machinery such as coal hoists, grain elevators, ore cranes, etc., except where the circumstances make the presence of such devices extremely desirable. It is, however, the state's duty to equip its public terminals with such cranes, derricks, conveyors and other facilities which will give the terminal its greatest efficiency and be adapted to the handling of the greatest variety of freight.

Several types of wharf cranes now are in general use on the public terminals available. The most common is the revolving type which con-

sists of a derrick and boom or jib, mounted on a turntable and so constructed that it may be raised or lowered by motors. This may vary in type from the low locomotive or auto crane to the massive portal or gantry type which has the form of a movable bridge spanning a roadway on the side of the pier.

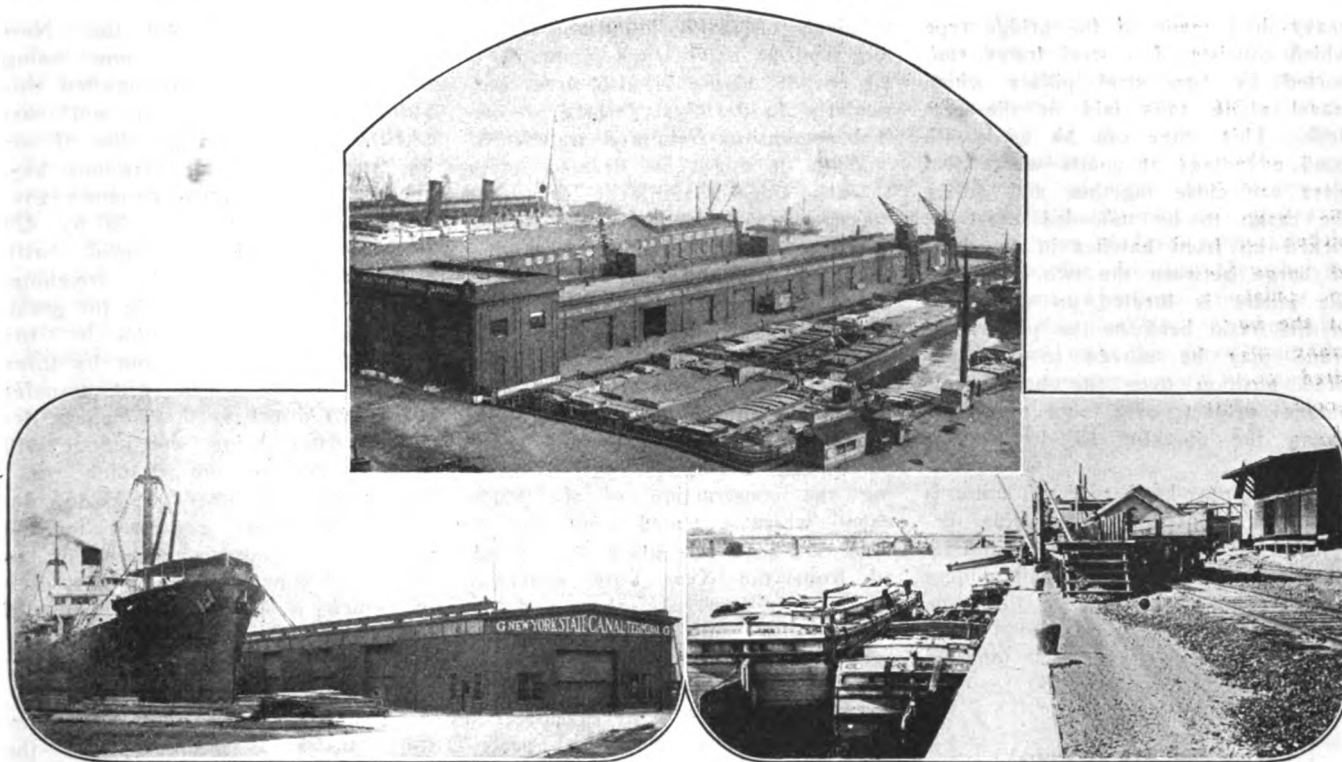
In the development of the terminal system provided on the New York state barge canal, four types of traveling cranes have been used. The first is the straight line crane of 1½ tons capacity. This travels on a runway supported on the roof of the transit shed and delivers freight inside the shed. The crane has a boom hinged to a frame so that when in its normal working position the inner end of the boom projects into the shed for a distance of 10 feet while the outer end reaches from the face of the dock for a distance of 25 feet. The machine is electrically operated from a cab and is designed so the operator may easily move it from one door to another by simply raising the boom to a position parallel with the side of the shed.

Types of Cranes Used

The second type is a semiportal revolving jib crane of three tons capacity. It is made up of a substructure shaped like an inverted letter L. The vertical portion of this is supported on trucks traveling on a rail in the wharf deck while the horizontal portion travels on another rail which is attached to the roof of the transit shed. The operator's cab, containing the motors, levers, etc., is mounted on a turntable resting on the horizontal bridge work of the substructure and supports the boom which rotates and has a reach of 28 feet beyond the face of the wharf.

The third type is steam driven and is known as the auto or locomotive crane. This consists of a cab containing the boiler and handling devices which are mounted on a truck supported by four traction wheels and carries a vertical frame or boom. The boom is 30 feet long and swings through an angle of 90 degrees. A fourth type of crane which is known as the burtoning crane is also effective for terminal work in such developments as the barge canal. This travels on a runway on the roof of the shed in a manner similar to the conveyor crane and has a capacity of one ton.

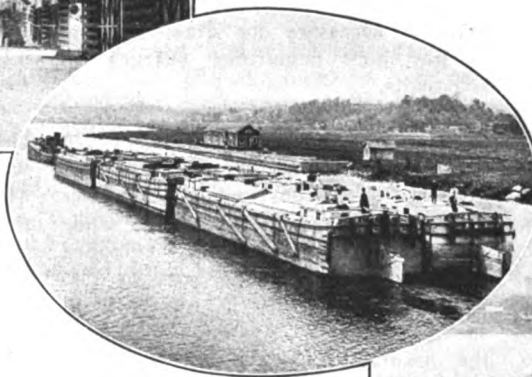
Other types of cranes may be used with good results. One is the



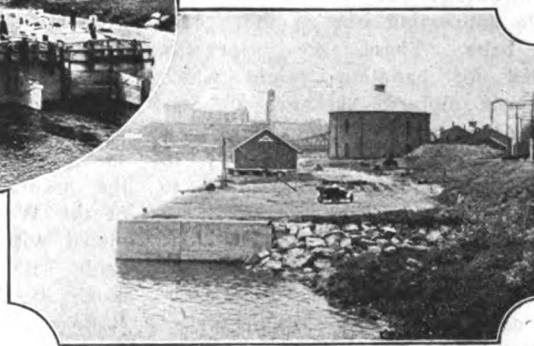
Left—Ocean steamer unloading cargo at barge canal terminal, New York; Right—Way station showing facilities for direct transfer of freight between barge and car; Top—Birdseye view showing general layout of barge canal terminal, New York



Above — Interior of steel freight shed at barge canal terminal, New York; Right—Fleet of inland water carriers passing modern waterway depot



Below—Local or way station showing freight shed and wooden derrick. This type of terminal is in general use at small towns on barge canal



Left—Type of fireproof transit shed for temporary storage of freight at important shipping points on inland water route, with locomotive crane and graded and paved wharf

heavy duty crane of the bridge type which consists of a steel frame supported by two steel pillars which travel along rails laid in the pier deck. This crane can be used with good advantage at points where two piers are close together and where the cargo to be unloaded must be picked up from hatches in the boat or barge between the two. One of the pillars is located on each side of the basin between the piers. The crane may be moved to any desired position over the boat while booms project over the piers enabling the operator to deposit the load.

The hammer-head type of crane is used in some of the more highly developed terminals of the seaboard, lakes or at navy and shipbuilding yards. The largest one of this type is at the Philadelphia navy yard. This has a capacity of 350 tons on a reach of 115 feet and 50 tons on a reach of 190 feet.

Derricks Are Essential

No terminal can be said to be equipped unless it is provided with derricks. The most common types of derricks now used for heavy duty are of lattice steel construction and consist of masts held by two stiff legs. These have booms about 74 feet long and a capacity of 12 tons. They are operated by electric power. Smaller derricks, of wood construction with booms 44 feet long and a capacity of two tons, also are used at many places. These are operated by hand.

A great aid to the rapid handling of freight at water terminals are the conveying and tiering machines which consists of a framework on wheels supporting one or more endless belts. These are especially adapted for handling freight which arrives in uniform packages and are practically moving gang planks. They eliminated the necessity of passing the packages from hand to hand, one conveyor being capable of handling packages at the rate of one ton per minute.

For movements back of the water line and inside the transit shed battery trucks, drays, cars, trailers and hand trucks are employed. A serviceable electric tractor is one three feet wide and seven feet long which travels on four rubber-tired wheels. They are practically small electric locomotives and when in operation each pulls a train of loaded trailers. These trailers may be cut off where desired and the use of such units has been found to save considerable time and money in

terminals of major importance. The old type of hand truck, common in all freight depots is also used, particularly in terminals where a limited amount of freight is transferred.

While it might be deemed unfair to ask the government to build massive ore docks and coal trestles at all terminals, occasions arise when conditions demand that such facilities be provided. One instance is found in the development of the New York barge canal terminal system. The early canals in New York were used for the movement of vast cargoes of grain. Of late years, particularly during the period marking the construction of the barge canal, which extended from 1901 to 1918, much of this grain was diverted from the New York waterway to the St. Lawrence river and the result was that, while Montreal grew in importance as a grain export center the port of New York gradually declined. Investigation showed that New York was practically devoid of grain elevators, there being only two in the harbor and these were owned by railroads and were not of sufficient capacity to handle all the grain that came to them over these lines. As a result practically every bushel of grain arriving in New York harbor over the waterways or rail lines has to be transferred by floating elevators. These devices, while efficient, are not only expensive but have no provision for the storage of grain. This made it necessary for grain shippers to pay high demurrage charges on shipments.

State Builds Elevators

Further investigation showed that Montreal had constructed a number of grain elevators and that while Buffalo was adequately equipped with such facilities the port of Oswego on Lake Ontario was without such structures. At the same time the assurance that the enlargement of the Welland canal would be completed within a period of five years made it practically certain that much of the grain now arriving in Buffalo would move on into Lake Ontario. To meet this condition the state of New York has undertaken to construct and operate two grain elevators, one at Oswego and the other at New York. Both are to be modern in every respect the Lake Ontario structure having a capacity of 1,000,000 bushels and the New York elevator a capacity of 2,000,000 bushels.

The Oswego structure is not to be built until the Welland canal is

nearing completion but the New York city elevator is now being constructed and will be finished this year. This development will cost \$2,500,000 and is on the site of the big state terminal at Gowanus bay. It will be a concrete structure covering a ground area of 70 by 429 feet and will be equipped with every modern device for weighing, cleaning, drying and storing the grain. When the grain arrives in the barges it will be taken out by three marine towers which will transfer the cargo direct to the weighing devices. After being weighed it will be conveyed to the cleaning room, transferred to other weighing devices and either conveyed to the hold of the ocean vessels or to one of 54 concrete storage bins, each of which is 95 feet high and 20 feet in diameter.

Difficult to Get Sites

This arrangement will allow for the transfer of grain between the barges and the elevator or boat but makes no provision for the transfer of grain arriving in the ocean cargo vessels. To accommodate these vessels which bring into the port many thousand of bushels, a conveyor system will extend from the elevator proper to Pier No. 1 of the terminal. This will make it possible to load and unload grain from both the barge and the cargo vessel, while provision has been made by which the conveying machinery will not interfere with the installation and operation of other freight handling devices.

One of the greatest stumbling blocks hindering the development of waterway terminals in the United States is the difficulty arising from the fact that private interests control nearly all the available water front on the main commercial streams.

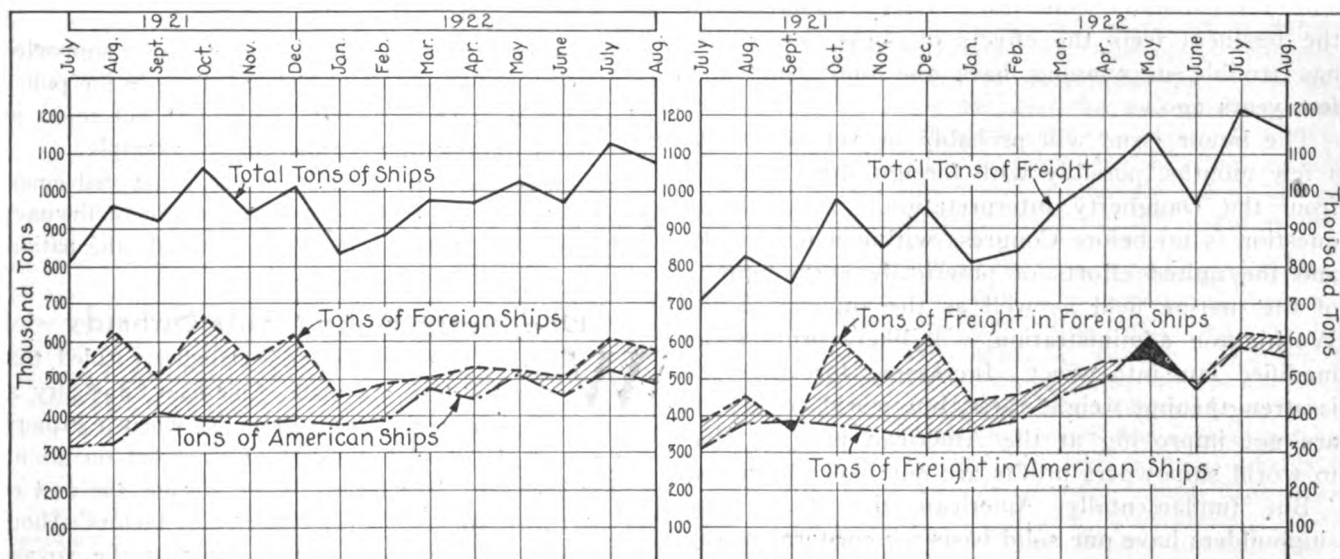
A special report on water terminals by the United States commissioner of corporations shows that a large proportion of the most desirable water frontage is owned by the railroad corporations or controlled by interests allied with them. The report further states that through this control they practically dominate the situation. In many cases they possess extensive parcels of undeveloped frontage, much of which could be used for public docks, but which they refuse to sell or lease. In fact, the situation is so serious that during the war the federal government, which constructed and operated barge fleets on the Mississippi river and the barge canal as a war

measure, was forced to construct floating terminals for use on the Mississippi while on the Hudson river there are many terminal developments which pay high rentals to the New York Central railroad. This condition is true at Poughkeepsie, N. Y., which, since the completion of the Panama canal has become one of the nation's foremost lumber terminals. At this city lumber brought from the Pacific coast to Poughkeepsie via Panama at a rate of \$6.50 per 1000 feet as opposed to a charge of \$19.50 when shipped overland by rail, has to be trans-

Antwerp and had surpassed that of London. Even the port of New York has much to learn from Europe. New York is first in commerce, but it is at a serious disadvantage as a port when compared with Marseilles. This is shown by the fact that, whereas the French port is so arranged and equipped that it can handle upward to 600 tons of freight over each running foot of wharfage, New York can handle only 150 tons over each running foot.

The same condition is true of Philadelphia, Boston, Seattle, San

lems be approached with careful and deliberate consideration and that before embarking upon any such improvement, assurance be had that it will be of the greatest benefit to the greatest number of people. Whatever may be the solution, one outstanding feature is apparent and that is that in developing the inland water routes, whether they be river improvements, barge canals or ship canals, the problem of terminals is one that must be faced and these aids to commerce must be constructed if the waterway is to fulfill its economic mission.



SHADED AREAS SHOW GRAPHICALLY THAT AMERICAN SHIPS IN PANAMA TRADE ARE CARRYING HIGHER PROPORTION OF FREIGHT THAN FOREIGN VESSELS

ferred to docks which, while constructed by the lumber merchants, are on railroad property and command high rental.

Continental Europe has adopted a different principle in dealing with the construction and operation of its water terminals. Here the municipalities build, own and control them. The result is that many of the European ports have made rapid strides forward within the past few years. Antwerp, before the war, was considered one of the world's finest ports. Nevertheless, this city has fewer inhabitants than New Orleans and is situated a considerable distance inland. Hamburg is another port that illustrates what public terminals will do for a port. This city is situated 60 miles up the Elbe. Boats approaching it have both mud banks and tide to contend with. This city, by the expenditure of \$100,000,000, finally had succeeded in making its terminals so attractive that, prior to the war, its commerce was growing faster than that of any city except New York and

San Francisco and practically every port in the United States where nearly all the property suitable for wharfage is owned or controlled by private interests.

One finds that even at the nation's capital, where the waterfrontage belongs to the United States, the same condition exists, owing to the fact that the waterfront has been leased to private parties. At New Orleans, the one exception to the rule, a different condition has been found. Here all the waterfront is owned and controlled by the city and is public.

This gives the other extreme as shippers protested they were unable to secure space to store their freight pending the arrival of cargo vessels and the condition became so serious that, in order to obtain relief the city was forced to construct its recently completed industrial canal and piers at an expenditure of \$50,000,000.

It would seem that in the United States conditions demand that the port and terminal development prob-

U. S. Ships Are Leaders in Panama Trade

American ships have been making an excellent record in trading through the Panama canal. In total vessel tonnage the United States has led all other nations for the past four years. But the above chart reveals that American ships have also been more fully loaded.

The chart at the left shows the total vessel tonnage passing through the canal during the past 13 months, and also the foreign and American vessel tonnage. The shaded area indicates graphically the degree of advantage maintained by foreign ships. The chart at the right shows the tons of revenue producing cargo carried in these ships during the same period. The shaded area also shows the advantage held by foreign ships. But the smaller amount of shading shows that American ships were more fully loaded while in two months, September, 1921, and May, 1922, the smaller tonnage of American ships actually carried more cargo than the large volume of foreign tonnage.

Editorial

Marine Industry's Greatest Strength

Abstract of report on marine industry given before National Conference of Business Paper Editors, New York, Oct. 12, by the editor of MARINE REVIEW.

SURFACE indications do not afford a clear picture of conditions in the marine field. The troublesome liquor issue, the delay in solving the subsidy question, the eager competition for freight business at low rates, the slight amount of ship construction, all point toward a serious and unsatisfactory condition. Every American in the business feels the effects of these issues and has trouble in winning back the optimism of a few years ago.

The liquor issue will probably be settled within a few months, possibly with foreign ships released from the Daugherty interpretation. The subsidy question is up before Congress within a few weeks and the united efforts of practically every branch of the marine field as well as the support of the Washington administration, will likely bring some modified law into effect. Increasing foreign trade is strengthening freight rates, but world conditions are not improving at the American pace so that to world shipowners profits are not likely to rise.

But fundamentally American shipowners and shipbuilders have one solid basis for encouragement. Domestic industry has grown beyond the domestic market and America must seek outlets for her surplus products in foreign countries. This condition has been the economic force which always has made other nations powers on the ocean. With a physical fleet in her possession, with better trained shipping and shipbuilding organizations than ever before and with foreign trade a necessary part of her industrial life, the United States is certain to regain her strength on the seas despite the interference of minor influences which today appear both disturbing and important.

Navy Day Deserves Recognition

FEAST or famine is a rather common rule in many industries. With their tendency to ignore national dangers until a crisis is reached, the American people have made this a fixed rule for the military branches of the government.

The navy is a striking example of this rule. In time of war, the department properly obtains everything necessary to win the conflict and unfortunately many of these necessary expenditures are made to correct conditions brought on by the careless policy of ignoring the navy during peace time.

To remove a condition by which the navy is alternately glorified and ignored, the Navy League of the

United States is trying to turn national attention one day in the year to the navy. This year that day is Friday, Oct. 27. A few minutes' thought on that day will recall the immense debt the country owes to its navy. This debt is not only because the navy has functioned successfully in every war, making success possible in each conflict, but because of the tremendous influence it exerts daily in stabilizing our foreign relations and safeguarding the country. Its mere possession today is a powerful influence in preventing troublesome nations from interrupting the peace this country desires.

The movement for a national navy day is supported by men who advocate peace. They believe in the policy of reduction of armaments by agreement but reject as absurd the fatuity of disarmament by example.

The navy has proved ready in every national emergency. On Oct. 27, a few moments' thought on the navy will benefit not only the navy but primarily the nation.

Daugherty Ruling Aids Subsidy

WHEN Attorney General Daugherty ruled that the Volstead act made American ships dry at all times and foreign ships dry when in American waters, he started the ship of state out on an interesting cruise. The length of the voyage, the cost or the port of destination are the uncertain factors. About the only certain element is the fact that the voyage has begun.

Mr. Daugherty accompanied his ruling with a host of legal precedents which are convincing. The prompt action of the steamship owners, both American and foreign, in getting the case into the courts, insures the Supreme Court being called upon for final decision. Both sides are anxious to hear this final word with the least delay.

In discussing the application of the law to foreign ships, most observers overlook a previous decision of the Supreme Court which seems analagous. The Court held that congress could legislate for foreign ships in American waters, when it upheld the provision of the LaFollette law compelling payment of one-half of a sailor's wages on demand. On this basis, many operators expect the Supreme Court to sustain Mr. Daugherty.

While Washington opinion agrees that the ruling was justified, many officials believe the application of the Volstead law to foreign ships was not intended by congress in enacting that law. A modifying law exempting foreign ships is one of the possible solutions.

Operators believe the ruling will aid subsidy legislation. And many believe its ultimate effect will not be as crippling as generally thought. But few care to assume the role of a prophet.

More British Shipping Employed

Coal, Grain and Nitrate Cargoes Stimulate Activity in
Dull Market—More Liners Are Placed in Service

BY CUTHBERT MAUGHAN

Shipping Editor, The Times, London

WITH the passing of the quietest months of the year there is just now a little more interest being shown by cargo steamship owners in the acquisition of tonnage. The autumn is of course, normally the busiest period of the year for cargo shipping. Throughout the summer days brokers were accustomed to say that business was quiet and that no real revival could be expected until autumn. In the years before the war there was a marked resumption of activity in the autumn months, but of late years seasonal changes in conditions have been far less marked. To some extent the lack of disturbance in the freight markets will have been due to the lack of producing power of some of the countries which previously could be relied upon to have large surpluses of grain for export; to some extent the failure of the purchasing power of great populations owing to the impoverishment caused by the war; and to some extent to the great increase in the supply of cargo tonnage in consequence, of the immense output of tonnage in the United States. The net effect of these influences and of others was that any

improvement there may have been in the demand for shipping in the autumn months passed almost unnoticed and, could be well taken care of by the ample supply of available shipping.

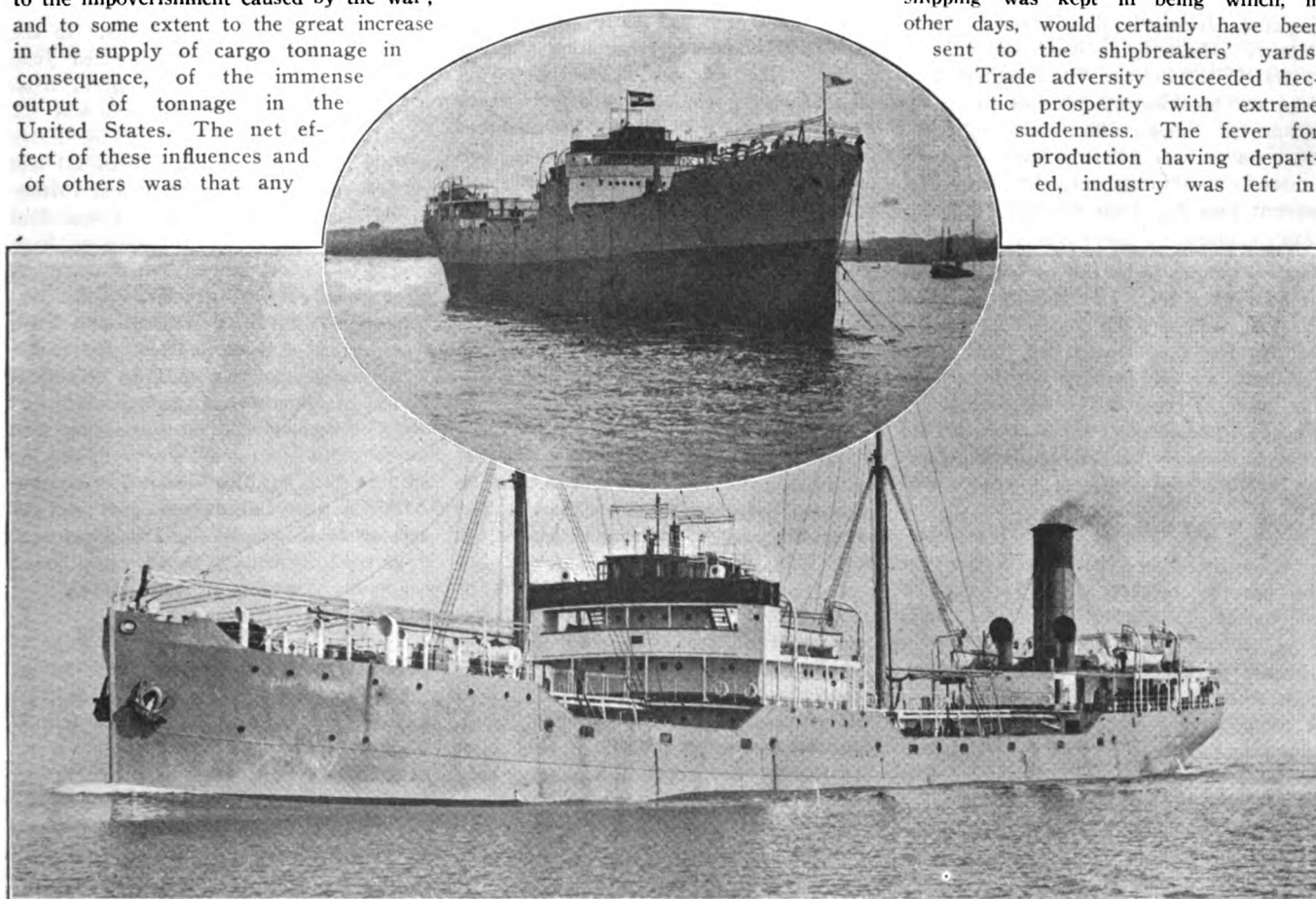
Old Ships in Service

This autumn even the gloomiest of shipbrokers would have to admit that there has really been some increase in the demand. He might wish to qualify his admission with the assertion that it was high time there was some improvement and that the quietness of the summer could not continue indefinitely. He might also desire to suggest that the improvement was due to some passing phases, which also would be of strictly temporary effect. And he might wish to conclude by seeking to prove that the last state of the freight markets would be considerably

worse than the present. Such pessimism would not appeal to all, and there are others who, without being unduly rash, would prefer to take advantage of their current opportunities and to trust that, in this changing world, new developments will occur which would not be entirely unfavorable to international commerce. After all, there is something to be said for the belief that the convalescence of the world must be expected to be slow, and that events which enable business men to survive successfully the period of gradual recuperation may indeed be welcome.

From the purely shipping point of view, time itself is at work effecting an improvement. Ships, unlike wine, do not as a rule improve with age. The abnormal demand during the war and for two years afterwards, for almost anything that would float meant that a great deal of shipping was kept in being which, in other days, would certainly have been sent to the shipbreakers' yards.

Trade adversity succeeded hectic prosperity with extreme suddenness. The fever for production having departed, industry was left in



FIVE SHIPS OF THIS TYPE WERE BUILT FOR THE BRITISH TANKER CO., LTD., BY MESSRS. WILLIAM BEARDMORE & CO., LTD. TOP VIEW SHOWS BRITISH MERCHANT AFTER LAUNCHING. LOWER VIEW IS OF ONE OF HER SISTER SHIPS SOLD TO FRENCH INTERESTS AND RENAMED SAINT JEROME

a weak state. There was no sudden decline which gave symptoms which could be read by men of ordinary ability. So when extreme depression had succeeded intense activity, there was little demand in the United Kingdom for old merchant tonnage, even to be broken up. In some cases the price which would have been paid for the tonnage to be scrapped would hardly have covered the cost of its removal to the shipbreakers' yards. As time passed, more shipping became due for survey by the registration societies which in order to ensure the continued seaworthiness of the vessels, would have required a good deal of work to be done. Wages were slow to fall, and owners of many of the ships could not contemplate the expenditure of the sums necessary for reconditioning the ships. Lately an estimate appeared in *The Times*, London, that out of a total world's shipping of 61,000,000 tons gross, 13,000,000 tons, or about 21 per cent, represented shipping of advanced age. The 13,000,000 tons comprised 6,000,000 tons represented by nearly 3000 ships of between 20 and 25 years old, and 7,000,000 tons gross represented by some 6000 vessels of 25 years and upwards. Age renders passenger vessels less suitable for their service earlier than cargo ships, and it is fair to assume that the bulk of this tonnage represents cargo steamers the breaking up of which cannot long be deferred. It may be that if trade were to improve substantially there would be a revival in the demand for merchant tonnage for breaking up. It has to be remembered, though, that merchant tonnage for scrapping has a powerful competitor in warship tonnage, of which a vast amount now has been doomed.

Shipbreaking yards in the United Kingdom are known to be full of old warships to be broken up. The activity in these yards is sometimes put forward as a justification for the dispatch of tonnage to Germany to be broken up. Germany has been a large buyer of secondhand tonnage to supplement the services of the new ships she is building until new fleets are available.

Want Secondhand Ships

While there is some little inquiry on the part of owners of cargo steamers for tonnage, it is mainly for secondhand ships. Few, if any, owners now see a prospect of making ships pay which are built at the present level of costs. Lately, meetings have been taking place between shipowners and the heads and representatives of the workmen in shipbuilding yards in order to try to discover what could be done to reduce the costs of production. There is little shipbuilding now going on in the United Kingdom. Such construction as is proceeding is mainly of liners and other vessels of special type. Owners of cargo vessels are

known to be willing to dispose of nearly new ships at prices far below what they paid for them and it is ships of this type that the present inquiry mainly affects. These ships can be bought for about one-fifth of what they would have cost during the war. There is known to be quite a supply of these vessels. In some cases banks which have acquired interests are believed to be ready to sell in the event of much of a rise in values. Some of them have been sold. It is a comparatively new experience for British banks to take a direct interest in tonnage but the margin above the money advanced is believed to have been so substantial that, as a rule, no losses were incurred when vessels were sold. In other cases banks are believed to be "nursing" ships with a view to being able to realize on them without loss. It is significant that of recent years the shipping investment companies have advanced little money on tonnage. Their managers are mostly in close touch with freight market conditions and they seem to have foreseen the heavy fall which would take place in values. The question of great interest to all now is whether values have fallen to their lowest point. Opinions vary among those in a good position to judge.

Demand Not Normal

In considering the better demand for tonnage this autumn, recognition must be made of the stimulus which the buying of coal in the United States on a large scale has been to shipping. This demand set in in a large way in July and during the past two months a great deal of tonnage has been chartered. The first fixtures seem to have been made on the basis of from 7s 6d to 8s a ton. By the end of July rates advanced to 15s and even 16s a ton. Those were the highest points reached. In August rates declined and early in September business was being done on the basis of about 9s a ton.

This demand for vessels to carry coal to the United States and Canada must be regarded as altogether exceptional. The cargo shipping of the United States has been built up on a basis of outward coal freights and homeward freights of crops and other raw material, but not on the basis of coal cargoes to North America. The exceptional demand placed from North America synchronized this year with the normal dispatch of shipping to load grain in the United States for Europe, and those owners who have been able to secure satisfactory outward freights for coal and also are able to obtain satisfactory inbound grain freights should be content with the business. The trade would have been even more satisfactory to owners if they had not often had to wait

some time for their cargoes of coal at the shipping ports. The discharge of some of the cargoes in North America is also understood to have taken longer than was planned. Some of the merchants seem to have anticipated that vessels which proceeded with coal to North America would have been available for loading homewards earlier than they were. This explained a rather sharp rise in the grain freight from Montreal in September. Grain shippers had calculated on plenty of shipping ready for the homeward voyage and when they found the supply was by no means as large as expected they had to offer higher rates, especially as shipments from Montreal, with the close of navigation in sight, could not be postponed indefinitely. So far, most of the demand for Canadian grain seems to have been on Mediterranean account. Italy, especially, is known to have been a large buyer. The activity of Montreal in shipping grain seems to have been accentuated by the railway trouble in the United States. Shipments from Canada seem to have been well up to the standard of any year.

Some of the other main cargo trades have proved disappointing. The River Plate market has been especially so, and the lowest rates of the year for grain from the River Plate have been paid during the last few weeks. In the second quarter of the year ended June 30 the highest rate paid for grain from the Plate to the United Kingdom was £1 13s 9d per ton and the lowest £1 5s. Early in July the rate dropped to about £1 and in September the rate had fallen further to the basis of about 19s per ton. Bad weather in Argentina is known to have interfered with grain shipments. A large number of steamers were dispatched to the River Plate with coal, their owners feeling confident that homeward employment would be available. Many of them were disappointed and early in September there were reported to be as many as 30 steamers laid up in the Plate awaiting homeward cargoes. After a time the owners got tired of keeping their vessels idle and some were dispatched in ballast to the west coast of South America to load nitrate.

River Plate Disappointing

The nitrate market has been one of the bright spots in freight markets. A large business has been done in arranging for "parcels" of this material, which may amount to as much as three or four thousand tons, by the liners, and all the available space in these is understood to have been secured until well into the next year. A fair number of full cargoes have been arranged for shipment during the autumn months and a certain number of sailing ships have also

been chartered. This is one of the few remaining trades in which sailing ships are still able to hold their own. Since nitrate is needed for fertilizing at certain definite periods of the year in each country, freight arrangements can be made some time ahead and the longer time taken by the sailing vessels is immaterial or is compensated for by the rather lower rate of freight. The demand for nitrate has been fairly widespread. Germany, the Scandinavian countries, Egypt and South Africa are among those countries which have been buying it. A better season for the producers than for some time past is anticipated but, although the freight inquiry has had a marked effect its influence has of course been strictly limited.

Export Duties Hamper

The Danubian grain market has, so far, been disappointing. In the late summer there were reports of substantial export surpluses of the barley, maize, and oats crops, but the policy of placing heavy export duties on the grain seems to have been responsible for the lack of shipments. In the case of barley the export duty amounts to nearly 50 per cent of the selling price in Europe and the remainder scarcely allows sufficient for an adequate price to the grower and to cover the costs of transport and marketing. Little, so far, has been heard of any inquiry for tonnage to move the American cotton crop, and it is assumed, that, as in the past few years, the bulk of this work will be done by the regular liners and the American cargo vessels. More consideration has been given to the conditions affecting cargo steamers because these seem, in various ways, to be more interesting at present than those affecting the regular cargo and passenger liners. The cargo steamers are mainly concerned with the carriage of commodities in bulk. Their main outward cargo is coal to various parts of world and this year they have benefited by the shipments of coal and iron to North America. The cargo liners are interested in the shipment of manufactures and the conditions of trade generally are still unsatisfactory. Outward from the United Kingdom to Australia and New Zealand lately, there has been some little improvement, but it has not amounted to much. Partly it has been seasonal, for in the autumn there is always a certain shipment of goods for the Christmas market. In the eastern and Far Eastern trades little recovery

from extreme trade quietness is, so far, reported. In some trades from Europe, and notably to South America, the competition of the German shipping companies is marked and represents a formidable problem, since the working costs of German companies are lower and the great fall in the exchange value of the mark has had the effect of making German rates of freight, calculated in foreign currencies, attractive.

The question of the conditions of bills of lading which has exercised representative merchant and shipowning associations during the last 12 months, has

were made by the authority to take effect July 31. At Liverpool the new rates come into operation as from Oct. 1. Early in September reductions were announced in the homeward rates on produce from Australia and New Zealand. It is on the homeward rates that the companies have mainly to rely for their earnings, since comparatively little outward cargo is carried and unless there should be marked recovery in the outward trades the immediate prospects for the companies in the Australasian route are considered to be unfavorable.

Some New Liners Out

New passenger liners are gradually being put into service, since for Britain, an island nation, passenger and mail sailings to various parts of the world are essential and modern ships must be provided. At the same time it has been shown in recent years that travel is restricted by high passage rates and the aim of managers will be to keep the rates on such a level as will encourage travel both for business and domestic reasons. The immediate problem for the managers of cargo liners and ordinary cargo steamers, or tramps, will be to secure profitable employment for all the tonnage now in service and still laid up. Taking into account the higher working expenses, as compared with

those ruling before the war, the freights for many of the bulk cargoes can now leave only a slender margin of profit. The cargo liners, as far as the outward trade from the United Kingdom is concerned, have had to derive their earnings from the freight on small cargoes as a rule. Reductions in rates have been made from time to time during the last two or three years in the hope that they would promote traffic. The trade recovery is, however, a slow

one and calls for all the assistance that shipping companies can give it. These recognize that cheap transport is of great importance to commerce; yet cheap transport is only practicable when the volume of traffic is large and not until shipowners are able to send all their ships to sea filled with cargoes at low rates of freight, will they be able to feel contented.

The port commission at Astoria, Oreg., has authorized the installation of two additional receiving sets doubling the terminal's capacity for handling grain. It will hereafter be possible to unload about 60 cars of wheat in eight hours. Improved loading facilities for loading bulk grain are also being provided.

British Shipping Index

PRICES OF REPRESENTATIVE SHIP SECURITIES IN THIRD QUARTER OF 1922

Securities	Highest £ s d	Lowest £ s d
Cunard £1 shares...	1 0 6 (July 31)	0 19 0 (July 6)
Furness, Withy £1 shares	1 14 1½ (Aug. 17)	1 10 0 (July 24)
P. & O. deferred £100 stock	318 0 0 (July 7)	297 0 0 (Sept. 14)
Royal Mail S. P. C. £100 shares	93 0 0 (July 6)	87 10 0 (July 20)

SHIP CONSTRUCTION IN UNITED KINGDOM, THIRD QUARTER, 1922

	Gross tons
Tonnage launched	307,232
Tonnage commenced	82,428
*Tonnage building Sept. 30.....	1,617,045
*Nominal figure, includes 419,000 tons of construction suspended.	

SHIP MANAGEMENT FACTS, THIRD QUARTER, 1922

	Highest £ s d	Lowest £ s d
Time Charter Rate: Ordinary British steamers per ton deadweight per month.....	0 4 3	0 4 1
Voyage Rates:		
Plate-United Kingdom grain, per ton....	1 5 0	0 18 6
Cuba-United Kingdom or Continent, sugar, per ton	1 1 3	0 18 6
Chile-United Kingdom-Continent nitrate, per ton	1 14 6	1 10 0
Fuel		
Coals: Best Welsh large, per ton.....	1 10 0	1 4 0
Oil: Per ton at Suez.....	3 17 6	3 17 6
Wages:		
A. B. Seamen, per month.....	10 0 0	10 0 0
Boatswains, per month.....	11 10 0	11 10 0
Firemen, per month	10 10 0	10 10 0
Assistant stewards, per month.....	9 5 0	9 5 0

not been completely settled. The various representative bodies had hoped that when they had arrived at a solution of certain difficulties which had arisen, the way was quite clear for legislation on the subject. This has now been postponed, although hopes are expressed that the government may be able to introduce legislation in the autumn session.

Notable reductions have been made in the charges on goods in the ports of London, Liverpool, and Southampton. These were made in the hope that they would encourage trade and bring the cost of handling goods in the United Kingdom nearer to the level at continental ports. Early in July representations were made by the merchants to the Port of London Authority for lower rates and some substantial reductions

Shipbuilding at Low Ebb

Few British shipyards are working but the recent placing of orders for new vessels indicates a betterment of the position. At Sunderland orders are reported to have been placed for several oil carriers and two vessels which have remained only partly constructed for many months are to be completed. This is due in a great degree to the efforts by employers and employees to fix up terms which would enable a large quantity of suspended work to be completed.

Referring to the present position in shipbuilding at the launching of the *FERNMOOR* from the Howden shipyard of the Northumberland Shipbuilding Co., Ltd., Sir Alexander M. Kennedy, the managing director, pointed out that today it was universally recognized that there could be no revival in the industry unless costs were brought into close relationship with market values.

Sacrifices by both shipbuilders and shipyard workers have been made during the last 18 months. Empty berths paid neither employers nor workmen, but with the former willing

to make great sacrifices and the latter agreeing to reductions in wages, there was still hope of arriving at a basis which would enable those shipowners, who desired to have new and up-to-date tonnage ready for the general trade revival, to place orders. With the further effort that was about to be made they fully expected to reach a point that would attract new orders.

Sir Summers Hunter, speaking on behalf of the builders of the *FERNMOOR*, expressed the opinion that better conditions now prevailed. He had confidence in the future, for the shipbuilding trade was well organized and was prepared to compete with the world when there is a better basis with regard to the cost of production.

Philip Runciman provided an interesting review of working costs which could not be cut any lower than they were at present. The rates for freights to the River Plate were 9s 6d to 10s 6d per ton before the war and today shipowners were only getting 14s 6d. For the return journey the prewar rates were 18s to 22s and today the rate was 18s 6d. In prewar days they could feed a ship at about 2s per man per day, but at

present the cost was 4s per man. In these times unless shipping companies were efficiently organized they could not make ends meet, he said.

With regard to a trade revival, Mr. Runciman confessed he was a pessimist. With the present supply of tonnage, and with Central Europe neither giving nor receiving he could not see how a big revival in trade could be expected. An indication of a brighter period for British shipping is also provided by the announcement that Smith's Dock Co., Middlesbrough, has secured an order to build six powerful tugs and two large trawlers.

Plans Barge Line Service

E. A. Woodward, president of Chadwick, Weir & Company, Ltd., Buenos Aires, reports that the republic of Argentina will establish barge service similar to the Mississippi-Warrior lines on the Plate, the Parana and the Paraguay rivers where the distances are about the same as on the Mississippi-Warrior streams. Mr. Woodward's company represents the Mississippi Shipping Co.'s Delta line at Buenos Aires.

Launches Last of Five British Tankers

COMPLETING its order of five oil carriers for the British Tanker Co., Ltd., Messrs. William Beardmore & Co., Ltd., recently launched the *BRITISH MERCHANT*. The four earlier launchings were of the *BRITISH ENTERPRISE*, *BRITISH TRADER*, *BRITISH INDUSTRY* and *BRITISH COMMERCE*, all of 6000 gross tons. The *BRITISH MERCHANT* is slightly larger.

All except the *BRITISH TRADER* were constructed in the new 4-berth extension to the Dalmauir shipyard, and it was the launching of the *BRITISH ENTERPRISE* which signaled the opening of this extension on Oct. 18, 1921.

The *BRITISH MERCHANT* is 440 feet between perpendiculars and 57 feet beam, a molded depth of 33 feet 11 inches, draft of 26 feet 6 inches, 10,000 tons deadweight and 11½ knots speed. She is of steel and is framed throughout on the transverse system. She is of the 2-deck type, with poop, bridge and fore-castle, has straight stem, elliptical stern, and two pole masts. The engines and boilers are fitted aft, oil compartments amidships and small cargo hold forward, under which bunker oil or water ballast may be carried. Accommodation for the captain and officers has been arranged on the bridge and upper bridge, for the engineers on the poop and for the crew in the fore-castle, with separate mess

rooms for them on the deck below.

The vessel is fitted primarily for carrying oil of low specific gravity, and every precaution has been taken to ensure safety when carrying such inflammable cargo. Capacity has been provided for about 9500 tons of light oil in 20 compartments carried up to the main deck, with expansion trunks to the upper deck and side tanks between the main and upper decks. The pump room is fitted amidships and in this space are installed two duplex oil pumps, each capable of discharging 300 tons per hour, through two main lines of 14-inch pipe. The discharges are arranged so pumps can deliver on each side of the vessel, through transverse deck pipes or stern discharge pipes. Additional 6-inch barge suction are fitted so that pumps can draw from barges and deliver into all tanks, the pumps working simultaneously. A permanent pipe line is fitted from upper deck for steaming out tanks or fire extinguishing. Pumps are also fitted forward for handling the forward bunker oil and transferring it to the main bunker aft, or discharging the water ballast under the forward hold.

The steering gear is of the electro-hydraulic type, controlled by a telemotor of latest type. All the other auxiliary machinery is steam driven and includes windlass, winches, dynamo, capstan, etc.,

and a small refrigerating plant is installed in the engine room for the cooling of meat and vegetable chambers which have about 850 cubic feet capacity.

The propelling machinery consists of one set of compound turbines driving double reduction gearing of the 3-box design. Steam is supplied by three single ended cylindrical boilers, each of 15 feet 9 inches mean diameter by 12 feet at a working pressure of 150 pounds per square inch. All the boilers are oil fired, and are fitted with forced draught arrangements.

The *BRITISH COMMERCE* ran her trials shortly before the *BRITISH MERCHANT* was launched. In design and arrangement the *BRITISH COMMERCE* is similar to the larger *BRITISH MERCHANT*, from which she differs only in the following particulars:

The propelling machinery consists of one set of triple expansion engines, 23, 36, and 58-inch bore respectively, with a stroke of 42 inches.

Steam is supplied by two single ended cylindrical boilers, each 14 feet 6 inches mean diameter by 12 feet 3 inches at a working pressure of 180 pounds per square inch. A donkey boiler, 10 feet 6 inches by 10 feet 6 inches is also fitted with the same working pressure. A complete equipment of auxiliaries is provided.

What the British Are Doing

Short Surveys of Important Activities in Maritime Centers of Island Empire

SLIGHT improvement in shipbuilding has taken place on the River Tees. The Messrs. Smiths' Dock Co., Southbank, has received an order for the building of six power tugs and two large trawlers, affording employment for a large number of workers. In addition, the firm lately has taken on 32 repair jobs. The position in Glasgow has not improved. The work undertaken since the coal strike has consisted chiefly of necessary operations for the completion of unfinished vessels. Many of these have now been completed, and have not been replaced by fresh contracts. There are now fewer vessels on the ways than for several years. The number of unemployed at the shipyards and engine shops has increased by about 8000 since work was resumed after the shipbuilding strike. The number of vessels launched comprise 90 for the eight months of 1922, representing 254,303 tons. The total for August was 17 vessels of 53,849 tons, being exceeded in the year only by 58,614 tons launched in January. Sir Arthur Sutherland who has large shipping interests on Tyne and Tees-side attributes the depression largely to the fact that passenger vessels now cost about three times as much as in the prewar period.

THE mayors of Glasgow, Newcastle and Barrow have appealed to the prime minister to expedite the laying down of two battleships which, it is understood, the government has decided to build. The only intimation yet received in behalf of the government suggests that work will hardly be commenced this year in view of the nation's heavy financial obligations.

BARROW-IN-FURNESS continues badly in need of shipbuilding work. Recently Vickers, Ltd., finished the turbine steamer JERVIS BAY for the Australian government line. The vessel went to Liverpool for speed trials and was scheduled for service between London and Australia on Sept. 26. She is the last of three similar liners built at Barrow for the Australian government, and Vickers is left almost without work. An oil

tanker is in dock for the overhauling of its engines, and a small barge is being built for the Furness Railway Co. A partly built Cunard liner is on the stocks, but work on this was suspended some time ago.

TEN leading shipbuilding firms have bid for the construction of a large floating dock to be installed at Southampton for the accommodation of large liners such as the White Star Co.'s MAJESTIC and the Cunard Co.'s BERENGARIA. The dock is to be 960 feet long and 170 feet broad, and is to be built in six or more sections. The amount of steel required will be slightly over 16,000 tons.

THIRTY Japanese sailors at Middlesbrough were sentenced to prison at hard labor for refusing to do their duty when ordered to do so by their captain. The men declined to work unless they were paid their wages, which, it was contended, were not due until the vessel reached Australia. They had received monthly payments in the ordinary way, and wanted the remainder of their money in advance.

AT THE annual meeting of the Trustees of the Clyde Navigation it was stated that the revenue of the year was £1,015,728, a decrease from the previous year of £42,405. The tonnage exceeded that of the previous year by 2,000,000, although the tonnage of goods was only increased by 200,000 tons owing to many vessels carrying light cargoes.

SIR Frederick W. Lewis, Bart., presiding at the annual meeting of Furness, Withy & Co., Ltd., said 10 per cent of the British maritime fleet was lying idle for lack of profitable employment. While Great Britain had made no increase, the United States had increased in ocean-going shipping from under 2,000,000 tons before the war to 12,500,000 tons. Referring to the United States subsidy proposals, the speaker criticised these as discriminating against British and other foreign shipping in United States ports. British shipping had all along been prepared to welcome the Amer-

ican merchant marine on lines of friendly co-operation and friendly rivalry, but the spirit must be reciprocated if it was to be enduring, he said. The greatest obstacles in the way of British commerce and British shipping were those imposed by allies in the late war. There are still 14,000,000 gross tons of shipping afloat more than in 1914 while the volume of trade with nearly all countries is considerably less than before the war.

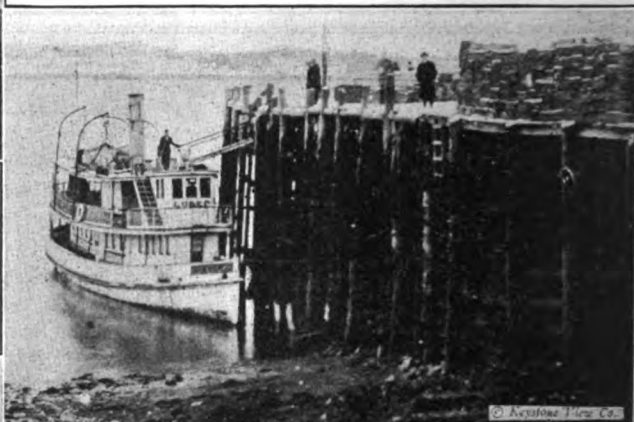
THE new Anchor liner TUSCANIA, the latest addition to the company's oil-burning fleet, recently was placed in service between Glasgow and New York. The TUSCANIA has a gross tonnage of 16,700 tons. She has a straight stem and cruiser stern, two steel pole masts, and an elliptical funnel. The paintwork is the color combination of the Anchor line, black hull and funnel and white superstructure. The dimensions are 571 feet 6 inches in length over all, 70 feet molded breadth, and 42 feet 9 inches molded depth.

The passenger accommodation is distributed over six decks. First and second class accommodations are located amidships, and designed for about 650 persons. Accommodation also has been provided for 1400 third class passengers. The vessel is fitted with a complete installation of long-distance wireless telegraphy. The engines consist of two sets of double reduction geared turbines, with vibration reduced to a minimum. There are three double-ended and three single-ended boilers working at a pressure of 220 pounds per square inch. The TUSCANIA is fitted to burn oil instead of coal.

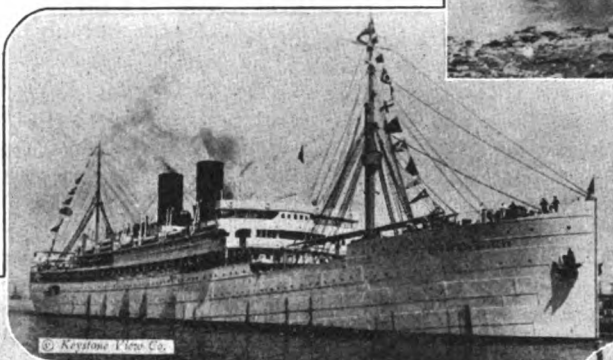
THE BRITISH SCOUT, a tanker being constructed for the British Tanker Co., Ltd., London, by Swan, Hunter & Wigham Richardson, Ltd., at their Neptune Works, Newcastle-on-Tyne, was launched Aug. 25. The steamer is steel and is designed to carry more than 2000 tons of oil cargo. She is 245 feet in length by 37 feet beam. The propelling machinery consists of a set of triple expansion engines supplied with steam by two boilers fitted with Howden's system of forced draft, and burning oil fuel on the Wallsend-Howden system.

Photographs from Far and Near

At Eastport, Maine, the tide rises 24 to 28 feet, once a year reaching the latter high-water mark. Here the powerboat Lubec is seen lying at the wharf, at low and high stage of the tide. When the water is low the gang-plank is set up on top the boat's pilot house



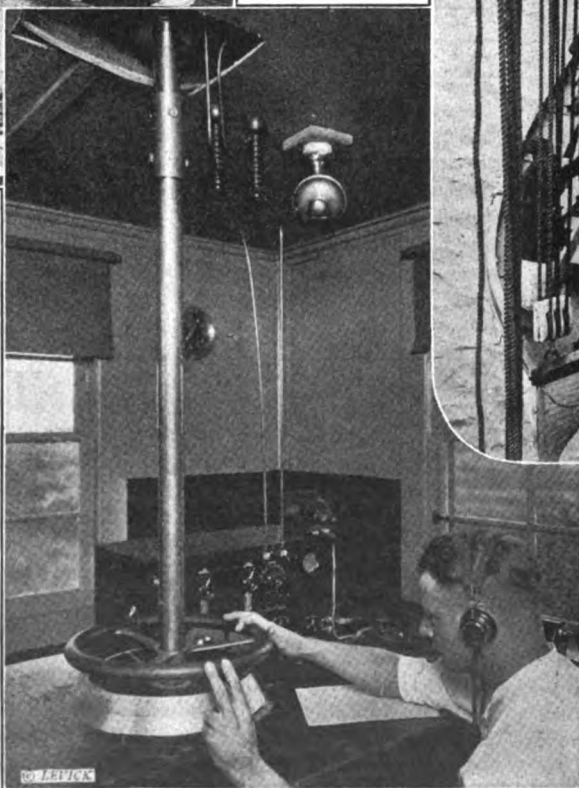
The City of Los Angeles, United States shipping board vessel, operated by the Los Angeles Steamship Co., leaving the harbor on her maiden voyage to Honolulu, with several hundred chamber of commerce excursionists and many southern California notables aboard. Her companion ship in the new direct fortnightly service, the City of Honolulu, caught fire on her maiden trip. All of the passengers and crew were rescued by other vessels after spending several hours in small boats



In view of the disaster to the British liner Egypt, boat drills for Lascars now are more common. Here members of the crew of the City of Exeter are going through drills on the Gairloch, Firth of Clyde. Prizes are awarded for special efficiency



On this side, only the huge Commonwealth dry dock in South Boston, Mass., owned by the government, could accommodate the Majestic, the largest liner afloat. The Majestic, which is 915 feet long and 100 feet beam, will be drydocked there after Nov. 14 to be inspected, cleaned and painted. This dock is 1200 feet long, and before receiving the ship it will contain 50,000,000 gallons of water. The ship can be floated over the sills. The caisson, which is of the floating type can be secured and the water pumped out in less than two hours. The photograph shows the battleship Tennessee going into the dock

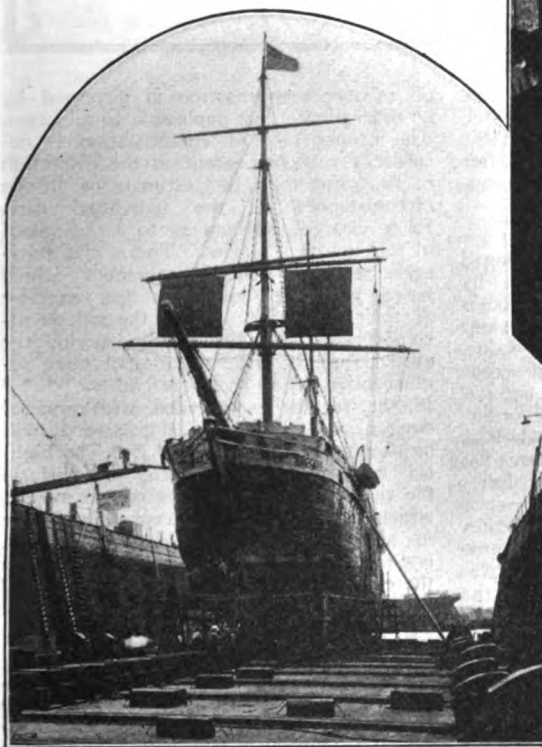


Important refinements are being made in radio and direction finding apparatus in use on ocean liners. By revolving the shaft, as shown herewith, the operator is able to discern the exact direction from which wireless waves are coming. Note the scale, and the type of receiving apparatus used



Latest Marine News in Pictures

The last of the old British convict ships, which formerly carried prisoners from England to Australia, was placed in the Clinton drydock at New York recently for cleaning. The ship has been traveling around the world mainly for exhibition purposes



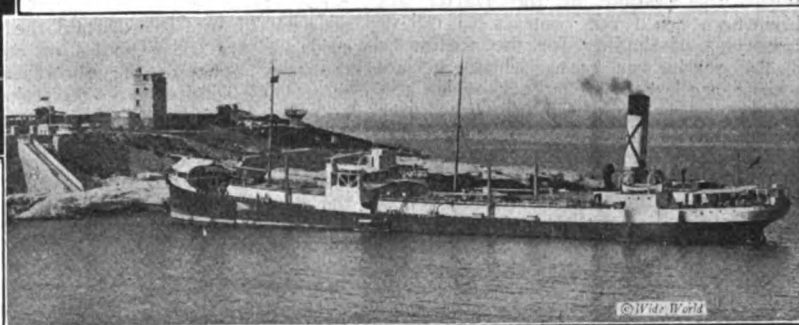
Here is a glimpse of the wreckage in the harbor of Swatow, China, the scene a few weeks ago of a disastrous typhoon. The city was devastated, five steamships were driven ashore, and hundreds of native craft were driven from their moorings and smashed. The damage was estimated at millions of dollars



A whaler leaving New Bedford harbor, Mass., is getting to be an unusual sight where it used to be a common one. This is the whaling bark Wanderer leaving for Cape Verde islands to recruit a crew for an Atlantic ocean whaling voyage, under command of Capt. Joseph Edwards



The harbor of Smyrna came into the international lime-light recently when the Greek and Armenian quarters of the city were destroyed by fire, the Turkish irregulars taking control and terrorizing the inhabitants. The city ranks as one of the leading commercial centers of the Levant.



The British steamer Cordelia aground off Pique, on the coast of Brittany.

Transportation service is being revived extensively on the Ohio river. Here is seen the Gen. Wood, Liberty Transit line, leaving Steubenville, O. This boat is one of a fleet making regular trips between Pittsburgh and Cincinnati.



Late Decisions in Maritime Law

Legal Tips for Ship Owners and Officers

Specially Compiled for Marine Review

By Harry Bowne Skillman

Attorney at Law

HARBOR navigation, it was said in the case of *JOHN E. BERWIND*, 270 *Federal Reporter* 569, requires vessels, especially scows, to expect and to be able to withstand reasonable rubbings and contacts, particularly when making landings and lying at piers, and in a suit by the owners of a scow against a tug for damages to the scow, the burden was on the owner of the tug to show that the scow was not fit to withstand reasonable rubbings and contacts with other boats.

The doctrine of general average is the equitable one that the loss caused by a sacrifice made for the common benefit of all should be borne ratably by all. "It has no application," said the court in deciding the case of *MARY F. BARRETT*, 270 *Federal Reporter* 618, "when the necessity for the sacrifice was caused by the negligence of the master or crew." Before the passage of the Harter act shipowners could not contract to relieve themselves of liability for the negligence of the master or crew, which in law is their negligence. That act, which exempted vessels from liability for losses due to errors of navigation, merely relieved them from liability, but did not entitle them to general average contribution for losses made necessary by errors of navigation. In the absence of a stipulation in the charter party entitling the ship to general average contribution for losses made necessary by errors in navigation, which stipulation is authorized under the Harter act, the vessel cannot, on a libel for part of the cargo jettisoned because of the stranding of the vessel resulting from errors in navigation, interpose the right to general average as a defense *pro tanto*.

The fact that two vessels sailed for a distance in company during danger from submarines, because one was armed while the other was not, but without further agreement, did not defeat a claim of the unarmed vessel for salvage services rendered to the other when stranded, it was decided in the case of *Maru Navigation Co. v. Societa Commerciale Italiana di Navigazione*, 271 *Federal Reporter* 97. It was further held that a vessel is not immune from foreign attachment in a suit *in personam* against the owner, because she was at the time under requisition by and in the actual possession of the Italian government. It was held also that payments made by the owner of a vessel to which a salvage service had been rendered to the master of the vessel rendering the service, to be divided between master and crew, which payments were not reported to the owner, nor intended to be, the purpose being to prevent any claim for salvage, did not bar suit for salvage

by the owner. An award of \$34,000, made for pulling off the stranded vessel, with freight for the voyage, \$320,000, which was released without injury after 39 hours, the vessels being in no particular danger, except from submarines.

Where no package of goods damaged exceeded the minimum value fixed by the bill of lading, which made the basis of settlement the invoice value, libellant is entitled to recover the invoice value, plus the freight, minus the net proceeds of the sale of the damaged goods, but not expenses and insurance, which are ordinarily recoverable in cases of total loss, and it was error to subtract from the sale price of the goods the customs duties paid thereon; however, the expenses of trucking, it was decided in *United States Willow Furniture Co. v. La Compagnie Generale Transatlantique*, 271 *Federal Reporter*, 184, are to be deducted from the proceeds of sale to ascertain the net proceeds, as are the expenses of conducting the sale. Though the allowance of interest in admiralty is discretionary, it will be allowed on a libel to recover damages to a shipment of goods, where no reason appears for denying such allowance, the interest to be computed from the date of the liquidation of the damages by the completion of the sale of the damaged goods.

The law allows the party or vessel inflicting an injury by collision to be relieved of responsibility by proving that the accident was inevitable in the technical admiralty sense, that is, that it was of such a sort that it would not have been prevented by the use of that degree of reasonable care and attention which the situation demanded, but the burden is heavily on upon the party asserting such a defense. With this rule in mind, the court, in the case of *ANNA C. MINCH*, 271 *Federal Reporter* 192, held that a steamer which broke from her mooring in Buffalo river during a spring freshet, carrying large quantities of ice, due in part at least to the breaking of an ice dam immediately below, subjecting her to such pressure as to cause all her lines, which were admittedly sufficient under any conditions to be ordinarily anticipated, to part at once, and which came into collision with a vessel moored below, was free from liability.

"The mere towing to safety of a drifting barge or scow is usually regarded as a salvage service of a low order or merit, and is compensated by a small reward. *** salvage services rendered in harbor cases, where tugs are abundant and on the ground or near by are not services of a high order. *** the rate

of salvage compensation is governed by no determinate rule applicable to all cases. The proper rate of compensation is necessarily to some extent in the discretion of the court on a just estimate of all the circumstances of the individual case. Each case of salvage is to be disposed of on its own merits. There are, however, certain general principles which serve to guide courts in the exercise of their discretion. When the risk is inconsiderable and the service slight, the award shall be little more than mere remuneration *pro opere et labore*. *** If the service is attended with unusual danger and difficulty, the award will be proportionately higher. *** The highest compensation, ordinarily allowed in the most meritorious cases is one moiety, which is rarely given except in the case of a derelict. While seldom more than one-half or less than one-third is given there are many cases in which the award has been under five per cent."—*HIGH CLIFF* 271 *Federal Reporter* 202.

Under the American rule allowing indemnity for the death of a seaman resulting from unseaworthiness of the vessel, the owner of the vessel is not an insurer of all the appliances on the vessel, and there can be no recovery for the death of a seaman caused by bursting steam pipe, where there was no evidence to establish negligence of the vessel owner with reference to that pipe.—*Burton v. Gregg*, 271 *Federal Reporter* 271.

"When the owner declares no value, and pays a minimum rate of freight, he should not recover more than the value agreed upon in the bill of lading *** or the real value, if less than that sum, the rate of freight being adjusted upon that agreed value. When he has declared the value of the goods on shipment, and they are delivered, he will ordinarily be made whole for any loss if he receive the value which he has declared, or for which he has invoiced them, whichever is least. But when the carrier has failed to deliver at all it should put the owner in the position he would have been in had the shipment been delivered in good order, viz. their market value at destination, which is ordinarily more than their value at port of shipment."—*Treat v. Redtop Electric Co., Inc.*, 271 *Federal Reporter* 307.

"The starboard hand rule does not apply to a tug backing preparatory to getting on her definite course, whether it be up or down the river. But such a situation of maneuvering a vessel is covered by the special circumstance rule. Article 27, Act June 7, 1897; c. C-4, § 1, 39 Stat. 102 (Comp. Stat. § 7901)." —*PROGRESSIVE*, 271 *Federal Reporter* 207.

Is Subsidy the Real Solution--III

Views of Those Opposed to Government Aid Are Summarized—Changed Conditions Raise New Arguments

BY ROBERT EDWARDS ANNIN

BEFORE considering the anti-subsidist argument, as such, it will be well to refer to an element, which, though it can neither be weighed nor measured, has been a factor in hastening the loss of America's former carrying trade, and will be an obstacle to its recovery. That is the hopeless indifference of the vast bulk of the population to the whole matter. Americans have not the "shipping mind" as had and have those of Holland, Norway, Sweden, Denmark, Germany, England and Japan; as had the Venetians of the middle ages and the Phoenicians of long ago. Without the stimulus of popular interest, the chances even of successful government aid are greatly reduced.

Speaking of the German advance in the carrying trade a witness before a special committee of the house of commons in 1902 said:

"I think the wide interest taken in shipping by everyone in Germany, from the emperor down, has done more to stimulate them to action and success than even the subsidies."

Such general interest here is almost impossible when the enormous proportion of inland population is considered, and the wide industrial opportunities offered to them; which have to their minds, no possible direct or remote dependence upon deep sea commerce.

The main purposes of commercial subsidies to steamers and steamer lines have been aptly thus described.

- 1—Support of lines plying to newly opened territory.
- 2—To establish what promises to be new trade.
- 3—To maintain owners of vessels in severe competitive struggles.

While the first two purposes are not lost sight of in the pending subsidy proposal, the third is obviously the major problem that argument pro and con is largely confined to this branch of the subject.

In stating the position of those who intelligently opposed the attempt to sustain and establish the merchant marine by government aid, it must be borne in mind that many arguments considered by them conclusive in 1912 are really not worth stating in 1922; because the conditions of today, altered beyond recognition by the

events of war, have made them obsolete.

Such for instance is what may be called the *Argumentum Britannicum* or argument from the experience of Great Britain. This was most effective while the sea command of that nation was so complete that it was able to regard any threatened competition with an amused complacency. But when present conditions are forcing England to the serious consideration of a reversal of her whole industrial policy, and of reverting to methods, both in freighting and trading, which have been regarded by her practical economists of the last 70 years as archaic and absurd, it is clear that the *Argumentum Britannicum* has lost its force. Further by the serious discussion of a preferential commercial policy for the whole British Empire, accompanied by the demand for government aid to shipping in the dominions as well as in the United Kingdom itself, the flank of this particular argument seems completely turned.

Have Strengthened Some

On the other hand the changed conditions have placed some new arguments at the service of anti-subsidists and have fortified some of the old ones. The vantage ground of moral principle upon which the Manchester school sought to place the doctrine of *laissez faire*, has been cut from under their feet; but the ground of economic principle remains serviceable, and the argument from expediency has in some respects been strengthened.

Of course what is meant here is only that certain arguments have lost or gained in effectiveness through changes which have altered the popular mental attitude toward them. If the argument that it is morally dishonest for government to extend aid to private industry was sound a dozen years ago, it is sound now. But the fact that it is deserted by its chief exponent makes it far less useful in the rough and tumble of debate. Conversely the argument of political expediency is vastly influenced by the disastrous results of the shipping board experiment, and the elimination of any possible demand for government ownership and operation, the

benefits of which the shipping board was originally planned to demonstrate.

The taxpayers have felt, if not seen, the results of government operation of railways and of government ownership and hermaphroditic operation of sea tonnage; and it is a safe postulate that this generation at least, has lost its appetite for government interference in private business in both these directions.

Hence the anti-subsidist of today, like the subsidist of all times has become an opportunist, talking less than of yore about what Mr. Lincoln used satirically to call "gurreat purrinciples" and more about concrete, if relatively narrow, facts.

His first claim will be admitted by his most uncompromising antagonist to be at least directed to the practical side of the question. It is that, in the present state of the public mind, it will be politically impossible to obtain popular approval of any general subsidy; that if such legislation be passed in opposition to public sentiment it will be promptly upset by the first party reverse; and that even if adopted, any such policy is bound to be no more than an abortive experiment unless it can command sufficient popular support to insure its survival of party changes.

Proves His Theory

If the tariff question be cited as showing this argument to be unsound, he will reply that the history of tariff legislation is not a disproof but a proof of his theory. In spite of much political sound and fury there has been no tariff legislation by either party in 60 years which has even approached a purely "revenue basis." The last law for taxing imports which could fairly be described as a "tariff for revenue only" was the Walker tariff of 1846 which was not superseded until the Morrill tariff 1862.

The Mills tariff of 1888, which failed of passage in Cleveland's first administration, contained a large measure of protection; the Wilson tariff of 1893 was denounced by President Cleveland as a breach of party faith because of its protective features, and was allowed to become law without the President's signature. President Wilson's announced conviction in 1912 was

that a purely revenue tariff was not then possible even if desirable; and the Underwood tariff of 1913 was described by Professor Taussig as "the beginning of a policy of much moderated protection." That politicians have the habit, after every political overturn, of jerking the tariff around to the vast dislocation of business and industry is most true and most deplorable. But regarding continuity of a generally protective policy there is hardly room for a difference of opinion, nor any question that this is due to a marked preponderance of public opinion on that side of this question.

It is further argued that unless the continuity of a subsidy policy be reasonably sure, a matter which no congress can guarantee as to its successors, even the individuals or firms who may be tempted into the field, realizing that their term of guaranteed profits is short, will work for immediate, rather than for ultimate, results. Such a policy must defeat the establishment of an ultimately self-supporting fleet which alone could justify such use of the taxpayers' money. The hope that a 10-year experiment can accomplish anything permanent must be regarded as illusive when the history of subsidy in France, the present condition of the carrying trade, and the apparent certainty of many lean years to come, are considered. In this connection too it is recalled that while the present depression has now lasted only since 1920, the last postbellum collapse left freights at non-paying levels for 10 long years, 1901-1911.

Points to Germany

Stepping now into somewhat broader ground the anti-subsidist asserts that whatever may have been the fact under ancient commercial and political conditions, a merchant marine cannot be successfully built up on government paper under the commercial conditions existing today, and under republican institutions. The success of Germany was achieved under a government in its essence medieval, ruling a race naturally thrifty, methodical and docile. Further, the German bureaucracy with all its faults was admittedly an example to the world in two respects, diligence and honesty. For all of these reasons Germany reached the results that she did with an expense which would not have enabled France or the United States to even make a start. And at that, after 20 years of effort, she required a successful war to keep the gains which these artificial methods had secured. The lesson drawn from the German ex-

ample evidently depends somewhat upon the bias of the party which interprets it.

The same is notably true in the case of France. The subsidist slides lightly over France's efforts to build up a merchant marine by government aid, but his opponent is eager to go into details. Beginning with 1881 the French republic set out to establish and maintain a merchant fleet at any cost. For the purpose of competing with their British neighbors, they established operating subsidies upon a ton-mile basis giving liberal allowances, to both steamers and sailing vessels. In the course of the experiment there were also instituted building bonuses to encourage French shipyards, and equipment subsidies to offset the English advantage in this respect. In 25 years the expense had been staggering, the amount of fraud and chicanery appalling and the maritime result negligible. A report to the British parliament in 1906 by the British consul general at Havre recited these facts and called attention to such incidents as ships being kept enroute for months in ballast, so as to obtain for the owners the ton-mile subsidy. His conclusion was that England need not trouble herself about the reaction of the French subsidy policy upon the British carrying trade and this opinion has been fortified rather than weakened by events of the last dozen years.

This brings the anti-subsidist to the reason why, in his opinion, this sort of experiment runs a better chance of success under, say, the old German Empire than under any democratic form of government. The reason, he says, is that the German, or any other efficient autocratic government, will be many times as successful in preventing uncovering and punishing frauds on itself as any form of really popular government yet tried. He points to the undeniable fact that to most people a fraud on the government is no fraud at all.

Would Scorn the Methods

The average man, dealing with his government, will use methods which he would scorn in his regular business activities. The average woman will trifle with the truth to evade paying duty on her daughter's confirmation dress. Government officials most of whom are half spoiled by being clothed with a little brief authority, grow even more impatient and arbitrary under the feeling that the public refuses to observe any special moral standards in dealing with them. Hence the insolence of office and man's natural depravity act and react upon each

other, and both are much accentuated thereby.

It results that in dealing with government, private greed and avarice are almost unrestrained; nor are bureaucratic methods competent to deal with them in a business where the former are trained in detail, and the latter relatively inexperienced. When the government interest is further hampered by "influence," "pull," and "fence building" by active politicians, with one eye on the Goddess of Liberty and the other on the main chance, the risk of the taxpayer getting a square deal is almost entirely eliminated. To illustrate this, the history of certain shipping board transactions is cited; and the inference not unfairly drawn that the "estimated cost" of the subsidy policy bears no ascertainable relation to its probable actual cost. The ultimate benefits being also problematical, the certainties of the policy are confined to this, that once the safety of the country is regarded as dependent on government guarantee of profits to private owners, the unpleasant results to the taxpayer will be without limit. It must be admitted that this whole line of objection is greatly fortified by the experiences of the last six years and recent disclosures in this relation.

Rivals Already in Action

Then there is the reprisal argument which holds that discrimination by the United States will be followed by such retaliation from abroad as will neutralize whatever measures of this kind may be adopted. For, says the argument, it is a mathematical axiom that the addition or subtraction of equal values from each side of an equation does not disturb the equality; hence the same treatment applied to both sides of an inequation cannot affect the inequality.

If then, it is considered that such measures as the United States may take to discriminate against foreign shipping, will be met by the same or equal discriminations against American shipping, it is not clear that any progress will have been made toward a self-supporting merchant marine. Since profit is the purpose of commerce, a merchant marine that is not self-supporting cannot give any promise of permanence.

Turning to the situation as it is now developing, it is evident that America's rivals are not only watching her closely but have already begun to act. One notable result has been the great diversion of grain imports, bound for England and the continent, from the North Atlantic ports of the United States to Montreal, during the

seasons of 1921-1922. This has been accomplished without any legislative discrimination by the deft use of commercial co-operation. Here is sufficient to destroy any assumption that because England formerly has shown indifference to maritime legislation of the United States she will continue to do so. Every commercial and legislative weapon open to the United States is available for her competitors, while one, a tax on exports, which they may use, is forbidden to Americans by Article 1 Section 9 of the constitution. It is said that today while about one-fifth of the world's commercial tonnage is under the American flag, nearly one half the world's idle tonnage is American. The subsidist argues from this the imperative need of subsidy; his opponent that it indicates a handicap too serious to be ever offset by a doubtful war of subventions, discriminations, duties and other artificial aids to shipping.

Repeal Is Unlikely

The latter has almost given up the cry for a repeal of certain of the navigation laws, not that he is converted to a belief in their wisdom; but because he realizes, as is undoubtedly the fact, that, good or bad, their repeal at present or in any future that can now be foreseen, is unlikely. The combination of the labor unions with protective sentiment is too strong politically to permit any reasonable hope of relief in this direction.

To enter upon a war of tariffs and navigation laws would not help matters, but might insure a fine crop of enmities.

In placing so much stress on subsidies, the possibilities which lurk in retaliatory navigation laws are apt to be overlooked. Seventeen years ago an American observer asked whether there was any use of subsidizing the merchant marine to provoke England into restricting to British bottoms the whole ocean borne traffic between the parts of her very widely extended empire.

To such a policy the United States would be both morally and politically estopped from objecting, since it would be identical in principle with her own coastwise laws. No league of nations, Hague or tribunal or arbitrators could be expected to rule such laws permissible to one country and prohibited to another. So far, therefore, as concerns any peaceful enforcement of such an objection, it is obvious that America should be hoist by her own petard. Of the only other method available, it may be said that the chance of successfully imposing either America's

services or goods on independent nations at the point of the bayonet is too remote to appeal to the practical people of the United States.

Thus far the anti-subsidist, being at least as human as his opponent, has confined his defense to what he feels to be his strongest points. There are two major arguments, on which he is apparently not yet prepared to take up a definite position.

In regard to the argument that American ships will be required to protect American exporters against discriminating freight rates exacted by

ting legislation, far greater under present conditions than those involved in a shortage of tonnage for waging a transmarine conflict that may never come.

From their point of view the international contest which starts out to demonstrate "who has the longest weasel skin" is almost certain to wind up in a dispute as to who carries the largest club.

After all what they have to say amounts to just this: They admit the dilemma, but differ from the subsidists as to which horn is the less perilous.

Expert in Ship Design Joins Harriman Staff

David W. Taylor, rear admiral and former chief of the bureau of construction and repair of the United States navy, has been engaged by the American Ship & Commerce Corp., New York, as consulting expert in matters of ship design, construction and operating economies. Admiral Taylor was chief constructor of the navy and chief of the bureau to the time of his retirement from the navy on July of last year.

Since then he had been engaged in claims board work which he completed in time to take up his duties with the American Ship & Commerce Corp. on Oct. 1. For the present his headquarters will be in Washington. Rear Admiral Taylor was awarded the gold medal of the British Institute of Naval Architects for the best original paper on ship-shaped stream forms, being the first American so honored. He was retained by the British government as an expert in the famous case growing out of the collision of the OLYMPIC and the HAWKES in 1911.

Admiral David W. Taylor was born in Louisa county, Va., March 4, 1864. He spent four years in Randolph-Macon college and then went to the United States naval academy, graduating in 1885 at the head of his class.

He was sent to Greenwich and was graduated from the Royal college in 1888. At both Annapolis and Greenwich he made the highest record ever attained at either place up to that time. He was made captain in the United States navy in 1901 and in 1917 was promoted to the rank of rear admiral.

He is the author of a number of books on naval subjects, including *Resistance of Ships and Screw Propulsion* and *Speed and Power of Ships*. He is a commander of the Legion of Honor.



DAVID W. TAYLOR

competing nationals, he is content to point out that at present there is no lack of cheap freight room; nor is there likely to arise for years any condition that will enable shipowners to oppress shippers. So far as exports are concerned the obstacle now most in evidence is that foreigners are buying all they can pay for and no kind of legislation will make sales in excess of that limit desirable to either shipper or ship. As to the future, conditions are so unpredictable that it is wiser not to cross bridges until we come to them.

To the argument for self defense, the writer has found no anti-subsidist with a constructive solution. The fact that America has had enough of war for the present; that no one dares attack her; that she will not again fight overseas; that she can always buy merchantmen in case of need—all these are put forward as answers, but even those who use them recognize that they are far from conclusive. They consider the certain risks involved in a war of tariffs, subsidies and discrimina-

Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties—
A Record of Collisions, Wrecks, Fires and Losses

NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING	NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING
Aagot	Sept. 8	Collision	Red Hook Flats	Slight	Golden Gate	Sept. 27	Disabled	Near Barry Island	Steerer dis.
Atalia	Sept. 18	Collision	Norfolk	Not stated	Gov. Alfred E. Smith	Sept. 27	Sank	Albany	Raised
Anne Hanify	Sept. 12	Disabled	San Francisco	Boil. trouble	Gulfland	Oct. 8	Collision	Mystic River	Not stated
Azumasan Maru	Sept. 14	Listed	Tacoma	Not stated					
Anvil	Sept. 17	Ashore	Port Angeles, Wash.	Damaged	Hammonia	Sept. 9	Storm	Off Vigo, Spain	Sank
Annie M.	Sept. 16	Collision	Little Bras d'Or	Sank	H. B. Lovejoy	Sept. 8	Grounded	Columbia River	Part of deckload overboard
Aube	Sept. 25	Ashore	Near Wolf Island	Jettis. cargo					
Arabian	Sept. 25	Ashore	St. Lawrence River	Undamaged					
Arundel Corp. scows	Sept. 31	Ashore	Assateague	Not stated	Home	Sept. 11	Ashore	Straits of Belle Isle	Total loss
A. E. McKenstry	Sept. 27	Stranded	Lachine Lake	Not stated	Harriet C. Whitehead	Sept. 13	Collision	Off Sabine Point	Plank damaged
Alphonse Racine	Sept. 22	Hurricane	St. David's isl.	Heavy to hull					
Alice May Davenport	Sept. 27	Leaking	Bermuda	Not stated	Horace M. Bickford	Sept. 20	Hurricane	At sea	Heavy
Arcturus	Oct. 3	Collision	Detroit River	Badly stove in	Harrison T. Beacham	Sept. 23	Leaking	Mobile	Not stated
					Hayo Maru	Sept. 25	Disabled	Off Wales Coast	Rudder broke
A B & O tug	Oct. 2	Collision	Buttermilk Channel	Not stated	Henry W. Conant	Sept. 28	Collision	Norfolk	Slight
Adriatic	Oct. 4	Fog, col.	Port Huron	Hole in side	Hokkoh Maru	Sept. 26	Grounded	St. Helens, Oreg.	Undamaged
Abbie S. Walker	Sept. 18	Ashore	Kennebec River	Strained	Helen Jean	Oct. 4	In tow	Turks Island	Sinking condition
Absecon	Oct. 9	Disabled	New York	Pumps & steerer dis.					
					Hope Sherwood	Oct. 5	Disabled	Norfolk	Rudder lost
Boston	Sept. 1	Hit by str.	Omaha Slip	To steerer & hull	Harvester	Oct. 5	Explosion	At sea	In pump room
Bylail	Sept. 11	Collision	Off Liberty	To stern	Huron	Oct. 11	Grounded	Detroit River	Jettis. cargo
Bantu	Sept. 10	Ashore	Rodden Island	Holds leak					
Belvernon	Sept. 16	Collision	Little Bras d'Or	Not stated	Ignazio Florio	Oct. 6	Disabled	St. Michaels	Leaking
Beaver	Sept. 21	Squall	Off Beaver Harbor	Lost masts					
Ball Bros.	Sept. 28	Collision	Above Marine City	To 6 plates	John J. Barlum	Sept. 18	Leak, sunk	Off Cedar Point	Total loss
Brandon	Sept. 29	Disabled	Port Huron	Steerer dis.	J. W. Thompson	Sept. 21	Ashore	Charleston	Not stated
Baldrock	Sept. 22	Hurricane, on bar	St. Georges harbor	Stern submerged	James E. Davidson	Oct. 3	Collision	Detroit River	Water in forepeak
					John Parker	Oct. 4	Disabled	Bermuda	Leaking
Bridgetown	Oct. 1	Collision	New York	Slight					
Burpee L. Tucker	Oct. 4	Hit obstruction	Parrsboro	Leaking	Kaga Maru	Sept. 18	Fog, col.	10 m. off Seattle	Slight
Bayamo	Oct. 8	Fire	Riverdale, N. Y.	In coal bunkers	Ketchikan	Oct. 1	Beached	Pinta Cover	Heavy to hull
					Kashu Maru	Sept. 30	Fog, col.	Delaware break-water	To several plates
Carlier	Sept. 11	Collision	Off Liberty	Not stated					
Cardonia	Sept. 17	Disabled	Key West	To refrigerator plant	Kansas	Oct. 1	Bad weather	At sea	Bulwark stove in
Calvin Austin	Sept. 20	Grounded	Cape Cod Canal	Rudder damaged					
Comino	Sept. 19	Grounded	Below Varrennes	Jettis. cargo	La Merced	Sept. .	Storms	At sea	Lost prop. & some sails
Callao	Sept. 22	Hurricane	St. Georges harbor	Not stated					
Curaca	Sept. 25	Fire	Brooklyn	Not stated	Lovejoy	Sept. 11	Ashore	Columbia River	Partly submerged
Cardiff Hall	Sept. 25	Gale	Immingham	Hull battered					
Corvallis	Oct. 1	Ashore	Diamond Reef, N. Y.	Not stated	Lake George	Sept. 16	Ashore	La Harve	Jettis. cargo
Charwood	Oct. 2	Ashore	Near Kisten isl.	Not stated	La Purissima	Sept. 21	Collision	San Pedro	Not stated
Ceuta	Oct. 7	Disabled	At sea	Prop blades broke	Linois	Sept. 23	Run down	At sea	Sank
					Lancastrian	Sept. 25	Grounded	Gloucester, N. J.	Not stated
Coyote	Oct. 10	Disabled	Charleston	Machy. damaged	Luxpalle	Sept. 30	Disabled	New York	Windlass broke
Cardiganshire	Oct. 10	Fire	At sea	To cargo	Llangollen	Sept. 30	Not stated	Barry Roads	Damaged
City of Honolulu	Oct. 12	Fire	At sea	Heavy	Lyman Stewart	Oct. 7	Col., on rocks	San Francisco	Will be total loss
					Laguna	Oct. 9	Rough weather	At sea	Stove in hatch
Duquesne	Sept. 4	Fire	New Orleans	Slight					
Datchet	Sept. 13	Collision	Off Sabine Point	No damage	Maplebrook	Aug. 31	Fire	Fort William	Slight
Danville	Sept. 13	Ashore	Near Tampico	Rudder gone, eng. dis.	Mariner (tug)	Sept. 6	Fire	Galveston	To eng. room
					Monte Santo	Sept. 20	Disabled	At sea	Not stated
Daisy Freeman	Sept. 19	Disabled	Off Oregon	Broke prop. blade	Morristown	Sept. 13	Fire	Delaware River	No damage reported
Dominion Miller	Oct. 2	Fire	Norfolk	Slight					
Dora Baltea	Oct. 5	Grounded	Near Galveston	Undamaged	Minnie & Maude	Sept. 14	Ashore	Pamlico Sound	Not stated
					Mongolian Prince	Sept. 24	Collision	River Thames	Slight
E. E. Duluth	Sept. 1	Ran into str.	Omaha Slip	Not stated	Marine	Sept. 20	Grounded	Point Pleasant Shoals	Not damaged
Edward Page	Sept. 18	Collision	Norfolk	Not stated					
Eastern King	Sept. 17	Fire	At sea	To cargo	Madeleine Constance	Sept. 00	Fire	At sea	Abandoned
East Side	Sept. 17	Grounded	Off Port Mifflin	Not stated	Maiden Creek	Sept. 28	Fire	Boston	Slight
Esther Welbourne	Sept. 22	In distress	Charleston	Not stated	Manitowoc	Sept. 28	Disabled	Kiel	Boil. leak.
Eastern (tug)	Sept. 28	Collision	Norfolk	Not stated	Mapleton	Oct. 1	Struck	Lachine canal	On bottom
Eastern Leader	Sept. 21	Struck rock	Hell Gate	To fuel oil tank	Mabel A. Frye	Sept. 28	On sand bar	Isle-a-Haute	Undamaged
					Michigan	Sept. 30	Fog, col.	Delaware break-water	Slight to bow
Empress	Sept. 30	Ashore	Mispe	Not stated					
Edith	Oct. 2	In tow, col.	Buttermilk Channel	Heavy	M. J. Taylor	Oct. 3	Hurricane	At sea	Crippled
Etna Maru	Oct. 2	Fire	Astoria	Serious in bunkers	Minas King	Oct. 3	Ashore	Young Cove	Jettis. cargo
					Mauretania	Oct. 3	Disabled	Southampton	Fourth prop. dis.
Empress	Oct. 2	Disabled	At sea	Eng. trouble					
Effna	Oct. 6	Rough sea	At sea	To bridge & winches	Marechal Foch	Oct. 1	Disabled	Halifax	Eng. disabled
Edwards E. Edwards	Oct. 9	Disabled	Delaware Break-water	Rudder, dis.					
Effna	Oct. 8	Fire	Brooklyn	Slight	Meropi	Oct. 5	Collision	Montreal	Plate broke
Fort George	Sept. 16	Ashore	Indian Island	Not stated	Maiden Creek	Oct. 8	Collision	Mystic River	Damaged
Floridian	Sept. 21	Collision	San Pedro	Not stated					
Fenchurch	Sept. 25	Fire	Hoboken, N. Y.	Slight	Nitaka	Aug. 26	Typhoon	Off Kamchatka coast	Sank
F. L. Robbins	Oct. 4	Fog, coll.	Port Huron	Slight	Norfolk (tug)	Sept. 13	Collision	Hampton Roads	Not stated
Favonian	Sept. 29	Not stated	Larrys River	Dismasted	Nuria	Sept. 9	Fire	Barcelona	Nos. 3 & 4 holds
F. H. Beckwith	Oct. 5	Disabled	New York	Prop. broke					
Flamingo	Oct. 9	Disabled	Norfolk	Leaking	Norway	Sept. 25	Grounded	St. Clair flats canal	Undamaged
					Nellie Dixon	Sept. 30	Not stated	Key West	Mainmast gone
Gracie B.	Sept. 13	Collision	Hampton Roads	Sank					
Gen. O. M. Poe	Sept. 22	Grounded	Russell Island	Undamaged	No. 102 (motorship)	Oct. 3	Sank	Crescent, N.Y.	Not stated
Gen. Garretson	Sept. 23	Grounded	Near Marine City	Undamaged	Norway	Oct. 6	Grounded	Near Bar Point	Jettis. cargo
George Curtis	Sept. 18	Fog, Col.	10 m. off Seattle	Slight	Natilda	Oct. 5	Collision	Montreal	Not stated
George Stephenson	Sept. 28	Collision	Above Marine City	To plates and hawser pipe					

Late Flashes On Marine Disasters

Brief Summaries of Recent Maritime Casualties—
A Record of Collisions, Wrecks, Fires and Losses

NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING	NAME OF VESSEL	DATE	NATURE	PLACE	DAMAGE RESULTING
Ottar	Sept. 18	Struck on break-water	Dover	Forepeak leak.	Strathcona	Oct. 2	Leak	Off Cabot isl.	Sank
Ormes	Sept. 20	Ashore	Morant Bay harbor	Undamaged	Sierra Nevada	Oct. 6	Fire	At sea	Not stated
Olga	Sept. 20	Gale, Ashore	E. of Nome	Total wreck	Sonzo	Oct. 7	Gales	Mid Atlantic	To deck fittings & steerer dis.
Only Sister	Oct. 4	Capsized	Harrison, N. J.	Not stated	Santiago	Oct. 10	Ashore	38 m. from Sagua la Grande	Jettis. cargo
Palembang	Sept. 7	Grounded	Jacksonville	Not stated	Titanic (tug)	Sept. 22	Disabled	Off Lorain	Feedpipe leak
Paria	Sept. 11	Fire	North River, N.Y.	Slight	Thomas P. Wand	Sept. 18	Ashore	Near Pfeiffers Point	Will be total loss
Plainfield	Sept. 8	Collision	Red Hook Flats	Slight	Tuscaloosa (not certain)	Sept. 23	Ran down ship	At sea	Not stated
Parkhaven	Sept. 20	Explosion	At sea	Slight	Tilthorn	Sept. 27	Ashore	Near Manila	Undamaged
Pierre Barados	Sept. 12	Not stated	At sea	Foundered	Thomas Crowley	Sept. 25	Was run into	Lynnnton, Oreg.	To guard aft & transom
Purnell T. White	Oct. 2	Fire	Norfolk	In cargo	Texan	Sept. 25	Ran into ship	Lynnnton, Oreg.	Not stated
Postmaster General	Oct. 5	Ashore	Near Gardiner	Undamaged	Telumah	Sept. 30	Ashore	St. Martins	May be total loss
Queen	Sept. 16	Grounded	Near Prince Rupert	Undamaged	Tamara XI	Sept. 11	Ashore	Uleaborg	Total wreck
Quebec	Sept. 27	Disabled	Montreal	Machy. dis.	Utsire	Sept. 12	Collision	Erith Reach	Heavy
Quaker City	Oct. 1	On rocks	S. of Cruden, Aberdeenshire	Heavy	Volunteer	Oct. 2	In tow, col.	Buttermilk Channel	Heavy
Roman Prince	Sept. 13	Fire	Panama	In after hold	West Totant	Sept. 16	Stranded	Pacific Reef	Not stated
Red Hook	Sept. 9	Grounded	Red Hook Flats	Not stated	Willaston	Sept. 19	Disabled	Barry Roads	Cylinder cover burst
Ripogenus	Sept. 19	Collision	Hampton Roads	Slight	Wilhelmina	Sept. 14	Disabled	Honolulu	Lost side port
R. W. Waterman	Oct. 2	Collision	Buttermilk Channel	Not stated	Willhilo	Sept. 23	Struck buoy	San Francisco	Undamaged
Ruth Kayser	Sept. 12	Struck mole	Bremen	Heavy	William Donovan	Sept. 19	Fire	San Pedro	Not stated
Romanstar	Sept. 12	Collision	Erith Reach	Slight	Warkworth	Sept. 28	Fire	Bordeaux	Not stated
Rovigno	Oct. 6	Ashore	Lat. 33S, Lon. 52W	Water in holds	W. J. Patterson	Oct. 1	Slipped off block.	Jacksonville	To rail & rig, leak
Stanwood	Aug. 28	Disabled	Near Astoria	Tail shaft broke	West Cressey	Oct. 3	Disabled	St. Johns	Slight
Sirius	Sept. 2	Fog, grounded	Hay Point	Undamaged	William B. Schiller	Oct. 8	Disabled	Mackinaw City	Steerer broke
Southern Cross	Sept. 16	Disabled	New York	Steerer trouble	Walter A. Luckenbach	Oct. 7	Collision	San Francisco	Badly crippled
Sara Eaton	Sept. 18	Grounded	Pollock Rip	Leak, badly	Yucatan	Sept. 13	Stranded	Tampico	Not stated
Salem	Sept. 19	Collision	Hampton Roads	Slight	Zagres	Oct. 11	Ashore	Near Cabanas	Not stated
Skipsea	Sept. 12	Bunkers on fire	At sea	To coal and slight to cargo					
Stranger	Sept. 25	Not stated	Charleston	Lost sails					
Storm King	Sept. 26	Disabled	English Channel	Machy. disabled					
Strathearn	Sept. 30	Struck object	S. of Fastnet Rocks	Stem broke					
Salem	Oct. 1	Collision	New York	Slight					

Port Traffic Record

Houston				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922..	43	46,600	43	97,005
August	35	40,503	32	63,281
July	29	30,909	32	73,299
June	38	48,938	36	74,798
May	44	45,108	42	134,046
April	42	61,751	47	98,825
March	48	45,312	40	105,309
February	28	27,173	30	86,028
January	32	53,779	31	92,096
December, 1921..	22	42,359	21	27,001
November	23	30,705	27	40,519
October	17	36,682	16	32,223
September	24	74,633	28	26,929

Port Arthur, Tex.

Houston				
Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	53	158,181	57	168,681
August	69	227,941	70	224,654
July	88	296,956	82	270,263
June	81	271,752	87	285,633
May	90	303,623	88	292,595
April	90	282,288	101	313,829
March	91	318,679	87	269,369
February	73	233,148	81	250,138
January	82	261,429	77	261,604
December, 1921.	106	359,401	104	339,605
November	92	286,179	89	263,940
October	93	256,932	89	263,993
September	87	224,944	92	254,039

Providence

(Exclusive of Domestic)

Month	—Entrances—		—Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	30	84,037	13	40,223
August	18	61,741	11	38,649
July	10	19,279	7	22,228
June	10	31,095	7	17,423
May	14	49,985	13	37,000
April	9	24,854	7	31,049
March	12	45,966	8	34,272
February	13	53,367	11	46,372
January	11	46,093	12	50,449
December, 1921.	8	26,053	16	50,847
November	12	50,551	16	59,677
October	13	46,530	10	44,661
September	12	43,665	19	65,515

Soo Canal Report

Freight movement through the Soo canal in September, 1922, aggregated 10,986,056 net tons, an increase of 727,142 tons when compared with the total movement of 10,258,914 net tons in August. Shipments in September of last year totaled 6,482,071, or 4,503,985 below the record for September of this year. September figures since 1916 are:

September, 1922	10,986,056
September, 1921	6,482,071
September, 1920	11,748,131
September, 1919	10,202,917
September, 1918	12,400,073

September, 1917	13,544,686
September, 1916	12,906,524

Of the total freight carried in September, 10,754,681 tons were handled through the United States canal, while 231,375 tons passed through the Canadian canal. Detailed figures for 1922 and 1921 are:

EASTBOUND		
	To Oct. 1, 1922	To Oct. 1, 1921
Lumber, M. ft. B. M.	176,913	162,689
Flour, barrels	5,879,523	5,962,655
Wheat, bushels	110,755,088	77,751,213
Grain, bushels	81,872,655	66,729,118
Copper, net tons	40,638	14,624
Iron ore, net tons	32,615,558	18,992,315
Pig iron, net tons	6,038	526
Stone, net tons	25,325	20,910
Gen'l merchandise, net tons	268,563	58,685
Passengers, number	28,865	32,468
WESTBOUND		
	To Oct. 1, 1922	To Oct. 1, 1921
Coal, soft, net tons	3,270,861	10,768,740
Coal, hard, net tons	23,957	1,787,569
Iron ore, net tons	34,608	526
Mig. iron and steel, net tons	35,505	21,971
Salt, net tons	50,740	40,107
Oil, net tons	159,659	267,734
Stone, net tons	408,068	362,875
Gen'l merchandise, net tons	417,574	348,968
Passengers, number	29,022	32,957
SUMMARY		
Vessel passages, number	12,523	9,436
Registered tonnage, net	37,553,851	24,033,387
Freight:		
Eastbound, net tons	39,127,899	23,712,236
Westbound, net tons	4,400,972	13,597,964
Total freight, net tons	43,528,871	37,310,200

Marine Business Statistics Condensed

Record of Traffic at Principal American Ports for Past Year

New York

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922.	519	1,985,981	542	2,104,884
August	515	1,772,837	508	1,865,798
July	509	1,928,541	520	1,977,690
June	486	1,718,879	551	2,070,048
May	524	1,769,601	496	1,759,780
April	454	1,651,584	473	1,758,160
March	462	1,708,727	484	1,829,016
February	414	1,548,412	391	1,533,163
January	370	1,230,000	396	1,436,614
December, 1921.	398	1,372,663	436	1,604,960
November	423	1,543,430	415	1,506,071
October	413	1,662,564	428	1,644,729
September	385	1,304,544	417	1,556,645

Philadelphia

(Including Chester, Wilmington and the whole Philadelphia port district)
(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922.	103	261,963	74	224,079
August	104	273,123	76	222,478
July	116	307,058	84	248,337
June	103	282,251	83	233,964
May	117	310,117	80	234,220
April	94	245,785	63	197,807
March	107	288,295	79	257,149
February	94	240,663	62	189,140
January	86	243,546	67	211,468
December, 1921.	89	256,660	90	285,894
November	89	249,873	87	252,606
October	86	239,103	67	204,652
September	60	143,434	66	195,558

Norfolk and Newport News

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922.	5	22,051	45	132,751
August	15	43,887	51	158,879
July	22	62,986	55	158,254
June	22	73,791	56	175,961
May	21	61,513	73	198,599
April	18	59,180	83	232,485
March	29	77,775	79	235,809
February	24	66,156	72	192,640
January	22	78,412	53	152,957
December, 1921.	24	83,609	64	184,012
November	27	84,214	60	171,235
October	23	68,037	59	151,849
September	25	75,836	51	148,987

San Francisco

(Inclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922.	535	1,030,252	530	1,032,879
August	507	1,071,981	506	1,038,402
July	499	1,021,517	478	1,000,501
June	483	914,717	486	873,946
May	477	885,753	470	862,712
April	419	796,654	465	895,918
March	418	816,268	446	819,813
February	409	744,590	390	729,773
January	415	797,676	416	759,577
December, 1921.	439	845,793	461	854,595
November	432	791,219	445	869,988
October	445	780,840	454	787,144
September	459	807,276	440	749,911

Baltimore

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922.	107	333,387	112	298,444
August	110	326,163	106	300,080
July	103	320,104	90	280,394
June	99	280,002	118	333,877
May	117	350,494	103	282,285
April	98	277,582	110	319,103
March	107	323,515	125	362,451
February	93	294,309	103	334,507
January	72	225,800	85	274,080
December, 1921.	95	281,373	102	312,528
November	78	243,934	80	253,943
October	73	249,481	78	252,098
September	85	259,788	81	260,789

Seattle

(Inclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	159	375,340	159	382,079
August	162	396,363	153	387,908
July	140	373,211	137	371,526
June	139	384,290	137	354,702
May	138	357,583	150	361,835
April	129	328,172	154	365,057
March	198	508,760	202	515,606
February	159	478,849	147	417,425
January	174	479,514	177	509,508
December, 1921.	183	528,191	180	517,996
November	177	489,119	166	454,118
October	163	431,637	157	443,447
September	168	434,912	150	387,151

New Orleans

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	212	555,017	223	571,299
August	249	625,819	250	629,150
July	227	570,709	236	601,740
June	253	596,752	234	587,483
May	236	632,495	230	610,916
April	221	565,559	225	594,842
March	235	643,251	258	716,568
February	197	582,189	201	576,973
January	225	621,483	217	603,995
December, 1921.	208	576,354	271	788,172
November	209	533,483	219	600,086
October	177	431,976	176	425,186
September	191	510,646	226	628,057

Boston

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	193	511,027	101	248,328
August	192	449,871	116	203,774
July	159	324,795	94	229,492
June	137	169,015	94	161,888
May	133	251,304	104	192,231
April	71	138,683	103	270,499
March	85	241,289	56	135,671
February	76	218,853	58	153,350
January	70	185,175	42	108,423
December, 1921.	94	239,170	61	134,039
November	62	137,585	80	180,940
October	99	229,800	67	158,695
September	88	197,208	69	144,268

Mobile

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	66	121,037	51	85,801
August	60	112,431	65	137,552
July	79	152,475	73	138,543
June	77	153,357	76	141,413
May	61	109,793	55	114,691
April	61	144,237	62	123,238
March	73	136,937	57	110,363
February	54	122,606	59	117,172
January	71	147,866	64	136,242
December, 1921.	85	194,757	87	216,233
November	87	104,489	47	86,559
October	64	124,089	60	122,949
September	55	95,343	46	89,460

Los Angeles

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	61	127,969	96	133,561
August	52	143,931	43	117,758
July	44	125,139	48	138,275
June	48	109,261	38	90,915
May	47	141,219	55	174,644
April	53	161,709	45	138,927
March	75	172,471	59	139,424
February	76	105,243	63	108,207
January	88	149,622	101	125,795
December, 1921.	94	161,393	81	137,450
November	66	42,054	90	69,275
October	68	124,682	76	123,276
September	54	128,611	45	119,275

Key West

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	57	64,645	59	62,676
August	65	69,962	61	65,883
July	67	80,673	67	85,336
June	60	73,308	58	73,842
May	89	107,629	82	101,318
April	77	81,917	81	86,471
March	97	78,984	92	76,531
February	84	67,080	78	68,137
January	77	69,850	77	72,321
December, 1921.	76	73,276	74	70,169
November	70	79,586	67	78,618
October	55	66,400	59	67,608
September	62	77,229	70	101,948

Portland, Me.

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	32	68,125	27	57,609
August	28	42,746	28	47,459
July	19	39,950	20	39,571
June	11	16,601	15	21,765
May	16	21,380	16	22,477
April	14	51,228	18	62,091
March	23	81,938	20	77,044
February	23	73,634	24	75,625
January	21	64,885	21	67,309
December, 1921.	29	92,777	32	99,527
November	24	37,712	12	16,794
October	13	21,191	8	13,652
September	10	15,345	12	26,224

Savannah

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	26	68,878	26	73,540
August	22	63,662	22	59,974
July	23	66,833	23	61,655
June	11	24,870	20	53,367
May	11	20,536	16	40,181
April	8	20,485	15	42,591
March	6	12,845	19	47,946
February	9	17,568	15	40,622
January	6	11,561	9	23,601
December, 1921.	4	8,876	14	43,281
November	10	19,543	16	44,187
October	6	10,417	13	37,447
September	3	5,152	19	56,024

Galveston

(Exclusive of Domestic)

Month	Entrances—		Clearances—	
	No. ships	Net tonnage	No. ships	Net tonnage
September, 1922	48	144,403	5	17,724
August	59	180,814	61	203,194
July	52	165,276	51	186,201
June	61	193,016	61	200,957
May	60	196,575	5	200,787
April	64	190,675	61	210,853
March	66	155,728	55	166,298
February	45	134,229	48	138,482
January	53	141,172	52	182,442
December, 1921.	74	220,988	85	255,851
November	77	221,217	70	199,885
October	72	219,001	77	227,982
September	75	214,391	99	295,869

Portland, Oreg.



Standard Seamanship for the Merchant Service, by Capt. Felix Riesenber; cloth; 942 pages, 8¾ x 5¾ inches; published by the D. Van Nostrand Co.; for sale by MARINE REVIEW; price \$7.50.

Education of the men in the American merchant marine along the most efficient lines and the fixing of a standard of American practice for surpassing the merchant services of the world is the object of this book. Containing 22 chapters and complete with 625 illustrations, this work covers types of vessels; hulls; knots, ropes and splices; block and tackle; steamer rigging and cargo gear; sailing ship rigging and sails; deck machinery; holds; peaks and tanks; stowage; carriage of live stock; tankers; passenger vessels; boats; compass, lead, log and piloting; the bridge; rules of the road at sea; ground tackle; handling a steamer; handling a sailer; weather at sea; safety on board ship; and ship maintenance. These are only the chapter headings. Each chapter goes into detail on each of many subdivisions covering vessels from design to operation and intended to answer any question arising in the course of ship routine.

The book is designed to meet the needs of the young seaman and to give practical assistance to any of the ship's company. The author is a practical seaman and a good writer. He has sailed under sail and steam, in merchant and naval service, and has written other books, among them being *Under Sail* and *The Men on Deck*.

The Twentieth Century Guide for Diesel Operators, by Julius Rosbloom and Orville R. Sawley; cloth; 637 pages, 8½ x 5½ inches; published by the Western Technical Book Co., Inc.; for sale by MARINE REVIEW; price \$15.

Following publication of *The Twentieth Century Guide for Marine Engineers*, *The Twentieth Century Guide for Automobile Operators*, etc., now appears a volume for the operators, schools, libraries and others interested in diesel operation. Development of the diesel engine has been far ahead of literature on the subject and the authors have made the most of the situation by offering a

joint work which aims to be complete, thorough and practical, covering the subject internationally and on both land and sea. Data, both original and obtained, are presented in the book together with examples, illustrations, charts, drawings, tables, etc.

The 16 chapters cover technical terms; theory; miscellaneous formulas; principles of operation; liquid substances; questions and answers on operation; fuel feed and ignition; principles of construction; auxiliary machinery and accessories; detailed description of diesel engines; diesel electric propulsion; low compression oil engines; compressors; pumps; batteries; and United States rules for licensing engineers on motorships, Lloyd's rules, and extracts from rules of the American Bureau of Shipping. Included in the illustrations is one of Rudolph Diesel, inventor of the engine which bears his name.

How to Start Marine Engines in a Cold Ship, by W. J. Woodcock; cloth; 153 pages, 4 x 7¼ inches; published by Spon & Chamberlain; for sale by MARINE REVIEW; price \$3.

The author has served as chief engineer both of steamers and motorships. He has put into this book, which is printed in notebook style, full instructions for setting all the valves and for operating single and cross compound turbines, triple expansion engines, semidiesel friction drive and full diesel electric drive.

His thorough knowledge of engine room practice is clearly revealed. Complete detailed instructions are given for handling the engine and fire room equipment, the instructions being simplified by reference to diagrams. The general rotation to be followed in starting the engines is given, and each detailed operation is stated in its proper order.

While the contents are familiar to many chief engineers, the book will serve as a reminder on details. For other engineers, the reference value is higher. Practical comments on engine and fire room practice are given which reveal the author's familiarity with his subject.

Steam Turbines, by William J. Goudie; cloth; 804 pages, 5¼ x 8¾ inches; published by Longmans, Green & Co., for sale by MARINE REVIEW; price \$10.

Rewritten and enlarged, this book now appears in its second edition, the first having been published in February, 1917. The chapters have been increased from 16 to 18, rearranged and expanded. The book contains 329 illustrations and a large number of examples. It was written and published originally to suit the needs of engineering students but its general appeal to engineers in the steam turbine field soon exhausted the first edition and resulted in the changes which now appear in the second.

The enlarged edition covers the rapid development which has been made in geared marine turbine, one of the revived chapters being given entirely to this subject. It is prefaced with a short account of the development in turbo-propulsion. A feature of the first edition, the inclusion of worked examples selected in conformity with practical requirements, is continued with the addition of others.

The book also contains designs and photographs of actual installations of equipment by leading manufacturers in the United States and abroad. Many of these have appeared in transactions of the leading American and British institutions and have been reproduced by the author with their permission.

Electric Ship Propulsion, by Com. S. M. Robinson, U. S. N.; cloth; 274 pages, 8½ x 5½ inches; published by the Simmons-Boardman Publishing Co.; for sale by MARINE REVIEW; price \$6.

For readers with an elementary knowledge of the theory of steam turbines, electric generators, induction motors, etc., the book is written to cover special points which come up in connection with the driving of ships by electricity and for comparison of this with other methods. Seventeen chapters include a history of electric propulsion and discuss systems, propeller characteristics; characteristics of alternating current motors and generators for ship propulsion; special characteristics of turbines and governors for

If Congress Finds Time It May Pass Ship Subsidy Bill

BY E. C. BOEHRINGER

Washington Correspondent, Marine Review

WHEN congress next convenes, whether it be Dec. 4 in the regular course or mid-November at the special call of the President, the administration's ship subsidy bill will be the headliner of the legislative program. Its only competition will come from the bone-dry appropriation bills for the next fiscal year, some amendments to the Transportation act and possibly some antistrike legislation. Its chief opponent will be time.

The short session of congress, convening the first Monday in December and expiring on the following March 4, was designed for the consideration of appropriation measures, and of late years it has not proved long enough for that. The subsidy bill has the status of having been introduced, accorded hearings and been reported out favorably by the house merchant marine committee. It can be voted upon immediately by the house.

The senate, with its unlimited debate, seems to be the stumbling block. The sentiment seems to be that if votes can be reached in both houses the chances favor the bill. The effort of the backers of the bill will be to get it to a vote, especially in the senate. Since March 4 terminates the present session of congress, all bills hang-

ing over at the close are automatically killed. If the subsidy bill is not disposed of by March 4 it must be reintroduced and reconsidered in committee.

Foreseeing the probable inability of congress to pass the necessary appropriation bills, aside from the ship subsidy and other proposals, at the coming short session, the President has been considering a call to congress to resume on Nov. 13 or 15. A special session is inevitable, and the President prefers one before the congress to be elected on Nov. 7 takes office. Leaders of both the house and the senate now appear loath to return prior to Dec. 4. Even if congress does convene in mid-November time will be the chief element against it.

Reviewing the work of the session of congress recently adjourned, the framing and perfecting of the subsidy bill was the outstanding development from the marine angle. Some five weeks were devoted to joint hearings by the house merchant marine and senate interstate commerce committees. While the Fordney-McCumber tariff act seems certain to reduce imports and thereby presents a bar to such few imports as come in American bottoms, the act has the redeeming feature of imposing a 50 per cent duty upon ship repairs, other than proved

emergency ones, made upon American ships in foreign ports. The free zone provisions of the act, which would have been helpful to American shipping, were stricken out in conference.

Congress paved the way for further development of American marine insurance through passage of the Edmonds act, permitting the incorporation of a so-called model marine insurance corporation in the District of Columbia. The \$50,000,000 appropriation for the purchase of grain for Russian relief, last January, was helpful to American shipping in that it was specified the grain should be transported in American bottoms. The Great Lakes-St. Lawrence waterway project, a feature of the early days of the congress, caught up short when Canadian authorities deferred negotiations for the necessary treaty. The oil pollution bills continue to rest with the house, rivers and harbors committee while an international commission has preventive measures in mind. The rivers and harbors improvement bill passed at this session authorized the expenditure of \$42,815,661. The assistance proffered to American firms trading in China by permitting federal incorporation and remission of federal taxes, in the Dyer act, may also prove stimulating to exports in American bottoms.

electric propulsion; ventilation, heaters and fire extinguishers; switchboards, interlocks and controls; wire, cable, insulators and insulation; exciters and other auxiliaries; the diesel electric drive; care and upkeep; and descriptions of some navy ships. The author's conclusions are influenced by his navy training.

* * *

Oil Engines, by Arthur Hugh Goldingham; cloth; 480 pages, 7¼ x 4¾ inches; published by Spon & Chamberlain; for sale by MARINE REVIEW; price \$4.

The design and construction of oil engines and directions for testing, installing, operating and repairing them is the substance treated in this book which is the fifth edition, the original appearing in 1900. The book is divided into two parts, one dealing with modern high compression engines and the other being historical and covering earlier types of low compression oil engines. This is

the first edition in which the division appears and is due to a desire to make the book fully representative of the progress made in the oil engine industry in recent years. Tabular data, charts, illustrations, drawings, etc., are distributed throughout, the number of illustrations totaling 200. Newer descriptions have been added to the treatise and the appendix in the fourth edition, referring to diesel engines, has been withdrawn and used as the subject of another work.

* * *

Brown's Practical Pocket Book for Merchant Seamen, by J. McKerrill; cloth; 128 pages, 5 x 6 inches; published by James Brown & Son; for sale by MARINE REVIEW; price \$2.50.

Many books are available for the guidance and assistance of seamen but this useful little volume approaches the subject along a new line. The book is designed to fill the need for a notebook, which are notably scarce in seafaring

trades, and consequently gives odd bits of information which are important and generally hard to find when wanted.

The notebook character is revealed in a study of the contents, which include various formulas and notes; odds and ends on navigation; paints, oils and varnishes; extracts from official documents regarding the carriage of dangerous cargoes and odd tips.

A large number of tables and notes are given ranging from mathematical to nautical and astronomical, as well as information on rope, weather, navigation aids, handling gear, weights and properties of metals, vessel trim, loading and unloading problems, lifeboats, and fuel consumption.

The material is well arranged and indexed so that location of any information is simplified. The selection has been well done and the seafarer will find the book useful.

Approve State Marine Risk Law

Insurance Commissioners' Convention Favors Measure
Drawn by Underwriters' Institute—Now Being Studied

OUTSTANDING among developments in the marine insurance field during the past month has been the approval of a new uniform state marine insurance law by the national convention of state insurance commissioners at Swampscott, Mass. The measure was prepared for the American Institute of Marine Underwriters by the admiralty firm of Barry, Wainright, Thatcher & Symmers and is different in several respects from the model marine insurance law passed for the District of Columbia. The aim of the proposed law is to furnish relief to domestic insurers and enable them to compete abroad. With the unqualified endorsement of the principles of the law by the insurance commissioners, the compilers of the measure are hopeful the commissioners will recommend to their state legislatures the enactment of such a law.

Among the main features of the proposed new measure, which has the marine underwriting world squarely behind it, are provisions for the separate and different regulation and taxation of marine insurance. The act differs from the present District of Columbia law in that it relates solely to marine transportation insurance, whereas, the other provides for multiple lines. The bill submitted to the commissioners seeks to change the method of taxing insurance from the present basis on the net receipts to a tax on underwriting profits, income from reserves and income from investments. That the present method of taxing marine insurance companies imposes a heavy and unfair burden upon them and hampers the rendering of the best service to the insured and the expansion of American marine insurance, was the plea made to the commissioners by representatives of the American Institute of Marine Underwriters.

Marine insurance is defined more clearly in the bill than formerly, while a clean cut, definite meaning is given to such terms as insurer, underwriter, corporation, insurance company, and insurance corporation. The licensing of individual underwriters and Lloyds associations is specifically provided for and makes necessary the filing of a sworn statement with the superintendent of insurance by individuals who are insuring on the Lloyds plan.

The purpose of the measure is constructive. It has been prepared with a view to making insurance in domestic companies attractive to American merchants, shippers and operators. The

removal of existing shackles which insurers of other countries have not to contend with, would result in domestic companies being able to reduce their rates and compete on an equal basis with the foreign markets.

The question of taxation is dominant. Insurance men are unable to see the justice of a tax based on the premiums they receive regardless of the loss incurred. The proposed bill provides that the superintendent of insurance ascertain the total average annual underwriting profit over a period of five years and base the tax to be imposed upon the earnings over this period. After the first year the tax will be computed year by year based on a five year's experience.

Provision is made to bar unauthorized insurers and the bill provides that persons binding risks or soliciting for any insurer not authorized by the commissioner of insurance shall be guilty of a misdemeanor punishable by a fine of \$1000 or one year's imprisonment.

After passing a resolution approving the proposed law, the insurance commissioners appointed a special committee to study the details of the measure and their application and report at the semi-annual meeting of the commissioners in New York in December. It is likely no steps will be taken to introduce the new bill before any legislatures until the early part of next year.

Urged To Change Rules

UNITED STATES delegates to the international conference for the revision of the Hague rules held at London Oct. 9-11, were primed by representatives of the insurance fraternity regarding changes in the proposed rules for carriage of goods at sea deemed advisable by the marine underwriters. A special meeting was held at Washington before their departure at which William H. McGee, president of the American Institute of Marine Underwriters, set forth the attitude of the insurance men. He said that the institute favors the adoption of the rules with a few exceptions, but would not jeopardize the adoption by insistence upon the amendments suggested.

Among the changes advocated are the extension of the definition "goods" to include cargo carried on deck as well as goods, wares, merchandise and articles of every kind with the exception of live animals. The term "carriage of goods" should apply to cargo from the time it

is received into the custody of the carrier until its delivery to the consignee.

Another member of the American institute informed the United States delegates that a fair measure of responsibility should be placed on the carrier as the shipowner is the person who can take steps to safeguard goods while in transit.

An amendment which would prevent the carrier from receiving the benefit of cargo insurance taken out by the shipper, was proposed by F. Francis Laws, of the Insurance Co. of North America.

Insurance interests at the meeting were represented by some of the most prominent underwriters in the country. Those present included Wade Robinson of Robinson, Sanford & Stoney; D. Roger Engler, attorney, American Institute of Marine Underwriters; William H. McGee, president, American Institute of Marine Underwriters; Harry E. Reed, and Charles R. Page, the Firemens Fund, San Francisco; F. Francis Laws, H. H. Reed and C. G. Morris of Insurance Co. of North America, Philadelphia; and George B. Ogden of the Federal Insurance Co. of New Jersey.

Hamburg Premium Higher

ADVICES have been received in New York to the effect that the Underwriters association of Hamburg has decided on an extra charge of 20 per cent on all premiums to cover increased costs. An additional charge of 5 per cent will be levied on all insurances in foreign exchange, with the exception of sterling, dollars and Dutch florins, which are subject to a 2 per cent commission. The extra charge will not apply to insurance on consignments arriving from America, Australia, Africa and Asia. The Hamburg association also voted to impose a fee if the premium is unpaid at the latest on the fifteenth of the month after the one in which the premium should have been settled.

September Dull Month

CONDITIONS in the underwriting market were quiet during September which bid fair to be one of the dullest months of the year. The volume of premiums written compares favorably with the same month last year and the loss ratio is even more favorable. Prospects for the remainder of the year are not considered bright and it is predicted business for the remainder of 1922 will

show a decrease as compared with 1921.

Although underwriters are confident a large quantity of grain and cotton, which is badly needed abroad, will be moved, other exports to Europe are likely to show a decided falling off. Underwriters are looking to South American and Latin markets to make up their loss of business on exports to Europe. Conditions at Cuban ports are said to be greatly improved and the stores and wharves cleared for new business.

Of most encouragement to the under-

writer is the fact losses are keeping within normal limits and during the past month there have been no outstanding large claims.

Dislike Bill of Lading

MARINE insurance underwriters are not pleased with the new shipping board bill of lading which has been in use for several weeks. It is contended the bill fails to provide a full measure of protection to shippers as it permits a carrier, if forced to put in an inter-

mediate port, to discharge the goods and have them forwarded at the owners' expense. As the carrier has contracted to transport a cargo to a specified destination, marine underwriters say that the carrier should be obliged to fulfill this agreement or make a pro rata return of freight charges if compelled to abandon the voyage. Another objection is to the clause allowing a carrier to unload cargo in lighters for the purpose of transporting the cargo from his vessel to the shore and place the responsibility for the loss upon the shipper or consignee.

Ocean Freight Rates

Per 100 Pounds Unless Otherwise Stated

Quotations Corrected to Oct. 13 1922, on Future Loadings

New York to	Grain	Provisions	Cotton (H. D.)	Flour	General cargo cu. ft.	100 lbs.	††Finished steel	From North Pacific Ports to	Lumber Per m. ft.
Liverpool.....	1/6	\$0.35	\$0.27½	\$0.15	\$0.30	\$0.60	\$7.00T	San Francisco.....	\$6.00 to 6.50
London.....	1/6	0.35	0.27½	0.15	0.30	0.60	7.00T	South California.....	7.00 to 7.50
Christiania.....	\$0.20	0.40	0.47½	0.25	0.45	0.90	7.00T	Hawaiian Islands.....	10.50 to 12.00
Copenhagen.....	0.20	0.40	0.47½	0.25	0.45	0.90	7.00T	New Zealand.....	12.00 to 14.00
Hamburg.....	0.12	0.20	0.25	0.17	0.45	0.82½	8.00T	Sydney.....	12.00 to 14.00
Bremen.....	0.12	0.20	0.25	0.17	0.45	0.82½	7.50T	Melbourne-Adelaide...	14.00 to 15.00
Rotterdam.....	0.10	0.30	0.25	0.16	0.40	0.75	4.50T	Oriental Ports.....	10.00 to 12.00
Antwerp.....	0.10	0.30	0.25	0.16	0.40	0.75	6.50T	Peru-Chile.....	14.00 to 16.00
Havre.....	0.15	0.40	0.27½	0.18	0.40	0.75	9.00T	South Africa.....	19.00 to 20.00
Bordeaux.....	0.15	0.40	0.42½	0.18	0.40	0.75	9.00T	Cuba.....	18.00
Barcelona.....	0.18	0.55	0.50	7.00T	—20.00T—		9.00T	United Kingdom.....	90s
Lisbon.....	0.20	0.75	0.50	7.00T	—20.00T—		7.00T	United Kingdom (ties)...	70s
Marseilles.....	0.18	0.75	0.65	5.00T	—20.00T—		7.00T	Baltimore-Boston range.	13.50 to 15.00
Genoa.....	0.17	0.50	0.40	0.42½	0.50	1.00	8.00T	Baltimore-Boston range.	
Naples.....	0.17	0.50	0.42½	0.42½	0.50	1.00	9.00T	(ties).....	13.00 to 14.00
Constantinople.....	0.22	15.00T	0.75	0.25	—20.00T—		8.00T	Buenos Aires.....	17.00
Alexandria.....	0.22	15.00T	0.75	0.25	—20.00T—		8.00T	Flour and Wheat	
Algiers.....	0.25	0.65	0.50	0.30	—20.00T—		12.00T	Oriental Ports.....	\$ 4.50 to 5.00
Dakar.....	14.50T			15.00T	—20.00T—		10.00T	U. K. and Continent....	27/6 to 32/6 T
Capetown.....	10.50T	20.00T		15.00T	—20.00T—		12.50T	Scandinavia.....	40s to 42/6 T
Buenos Aires.....					—20.00T—†		6.00T †	Mediterranean.....	40s to 42/6 T
Rio de Janeiro.....					—21.00T—†		6.00T †	Steel	
Pernambuco.....					—20.00T—†		8.00T †	Oriental ports.....	\$5.00T
Havana.....	0.17½*	0.37½*		0.17½*	0.47*	0.94*	0.20*	Cotton	
Vera Cruz.....		0.45		0.20	0.45	0.90	0.35	Oriental ports.....	\$10.00T
Valparaiso.....		1.07		0.70	0.45	0.80	12.00T	Apples	
San Francisco.....		0.40		0.56			0.30	United Kingdom.....	\$1.00 per box
Sydney.....					20.00 to 25.00		11.50	Copper	
Calcutta.....		16.00T			—16.00T—		10.00T	Oriental ports.....	\$4.50 to 5.00

T—ton. †Landed. ††Heavy products limited in length. *Extra charge for wharfage.

Principal Rates To and From United Kingdom

	s	d		d
Grain, River Plate to United Kingdom.....	21	9	Coal, South Wales to Buenos Aires.....	16 0
Coal, South Wales to Near East.....	14	0	Iron ore, Bilbao to Middlesbrough.....	6 6
Coal, Newcastle to France.....	5	8	General British market, six months time charters, per ton per month.....	4 6

Bunker Prices

At New York				At Philadelphia				Other Ports	
	Coal alongside per ton	Fuel oil alongside per barrel	Diesel oil alongside per gallon		Coal alongside per ton	Fuel oil alongside per barrel	Diesel oil alongside per gallon		
Oct. 4.....	5.85 @ 6.15	1.45	5.25 cents	Oct. 6.....	6.10 @ 6.25	1.80	4.25 cents	Boston coal, per ton	\$9.65
Jan. 9, 1922	5.50 @ 5.90	1.25	5.50 cents	Jan. 9, 1922	5.10 @ 5.35	1.50	5.00 cents	Boston, oil, f. a. s., per barrel	1.40
April 6.....	5.30 @ 5.90	1.16½	4.75 cents	April 10...	5.90 @ 6.25	1.05	4.25 cents	Hampton Roads, coal, per ton	9.00
July 1.....	8.10	1.26½	4.75 cents	July 1.....	8.00	1.15	4.25 cents	Seattle, coal, per ton	7.50
Sept. 8.....	9.25	1.25	5.00 cents	Sept. 8....	9.00	1.47	5.00 cents	to 8.50	
Oct. 13....	8.55	1.45	5.50 cents	Oct. 13....	8.30	1.47	5.00 cents	Cardiff, coal, per ton	19s
								London, coal, per ton	22s
								Antwerp, coal, per ton	22s

Trend in Propelling Machinery

Analysis of Factors Which Have Brought Diesel Engines Into Favor Including a Study of Costs

BY JAMES RICHARDSON

AT NO other time in the history of marine propulsion have so many types of propelling machinery been available to the shipowner from which to choose. Nor is the problem of selection a matter of easy solution. Not only is the propelling and deck machinery of great importance as regards first cost, representing from 25 per cent to 40 per cent of the total cost of the ship, according to the design of ship, type of machinery, and the dividing line which is adopted as between propelling and deck machinery but the economy and certainty of operation of this propelling machinery is a dominant factor in governing the margin between profit and loss.

Old Tonnage

The shipowners of the seagoing nations of the world are now faced with the necessity of increasing tonnage although the total tonnage today available is generally in excess, certain classes being excepted, of the freight-carrying demands. Yet the figures which have recently and frequently been produced are misleading if taken at their face value. During the war a considerable number of ships were pressed into services for which they were definitely unsuitable. Large additions of tonnage were also made in certain quarters without there being available either the requisite experience in construction or the necessary skill to manage the business side of ship owning and to operate the imperfectly constructed vessels.

Furthermore, a number of the large shipowning concerns with well established trades of long standing, having all the necessary organization for carrying on their special business, are operating with fleets of diminished numbers of ships of a greater average age than is consistent with maximum efficiency. In one case a fleet, the average age of which for maximum efficiency should not exceed six years, is operating with ships averaging 12 years old. A further fleet, the normal complement of which is 16 ships, is only now composed of 6. These are merely given as typical examples. The

latest official returns show that of all the vessels owned in the world, 31.5 per cent are over 20 years old and more than 20 per cent are over 25 years old. As regards British ships, the position is substantially the same. All these factors can only lead to the definite conclusion that there certainly must be a considerable amount of building of new tonnage in the near future.

The question, therefore, of the type of ship, as denoted by propelling machinery naturally arises and in this connection a decision must be made regarding the fuel to be used, whether oil or coal.

It can now definitely be stated that except in special cases, the burning of oil fuel under boilers, with the present prices ruling for coal and oil, is actually uneconomical. The advantages which hold in the case of the Atlantic liner have not now, with reduced wages, sufficient potency with the lesser powered and slower cargo carrier to warrant the extra first cost of machinery and the higher price for fuel. The subjects of price, distribution and available supplies of oil fuel must be considered. As regards distribution little difficulty will now be encountered because oil-fuel stations in numbers have been provided on all of the principal trade routes, and the ease with which this fuel can be accommodated on board ship and the 50 per cent greater heat value per ton and 65 per cent advantage per cubic foot makes possible for a given ship a very much greater radius of action, without re-bunkering.

Coal or Oil Fuel

The price of oil fuel within the last ten years has kept approximately the same position relative to coal, with an inclination recently to be relatively cheaper. There is no sign of a reduction to such a figure that oil-burning under boilers for the average merchantman can compete with coal, excepting in special cases where oil is relatively cheap and coal dear. There is evidence that there will be available supplies of fuel oil to meet the demand, although the incentive of the high prices obtainable for petrols and lubricating oils will tend to cause producers to distill

the crude oils to the maximum possible extent, having the effect of lowering the quality of diesel and fuel oils coming on the market.

Recently a number of tests, followed up by actual trials under normal operating conditions at sea, have proved that the diesel oil engine is not so sensitive to varying qualities of fuel oil, including high asphaltic bunker oils as was earlier believed to be the case. As to whether the extra overhauling, which the heavier and less easily combustible oils may well demand, counterbalances the savings in fuel costs, will emerge in time, but it is certain that the capacity to burn reasonably satisfactorily almost any grade of fuel oil in the market is unquestionably an added asset of considerable value and will in the future be regarded as a necessity for ocean going tramps.

Diesel Engines

Under such conditions as the foregoing, undoubtedly the diesel oil engine as the most economical consumer of liquid fuel makes a most compelling appeal, requiring only from one-third to one-fifth the quantity of fuel used by equally powered steamers.

The present position of the diesel engine is gradually but surely strengthening. There are now available more types of marine propelling plants of all kinds, and particularly of diesel engines, than ever previously. Hitherto a reasonably full measure of success has been limited to those types of internal combustion machinery where conversation in design and construction has been the keynote, but today newer developments on a bolder scale in internal combustion are gradually proving themselves at sea.

The maximum powers for which the diesel engine can definitely be stated to be suitable are gradually increasing and today 300 brake horsepower per cylinder, with 16 cylinders, that is, two engines each of eight cylinders, a total of 4800 brake horsepower, or the equivalent of 5500 steam indicated horsepower total, is the standard for the large class of motor vessel. This range of power covers 96 per cent in numbers and 88 per cent in tonnage of ships under construction at the

Abstract of a paper presented before the engineering section of the British association at Hull, England, Sept. 12.

present time, and while making all allowances for the fact that the average today may give a smaller ship than normal, due to the limited number of large liners under construction, yet it is seen that the field already covered as regards power is considerable. Such power as 5500 equivalent steam indicated horsepower still requires twin screws with the diesel engine.

The largest cylinder at sea still remains 700 brake horsepower, but with the particular construction in this case of opposed pistons, the number of cylinders is limited to four. The time is not far distant when diesel engines of 400 to 500 brake horsepower per cylinder, of various types and in numbers, will be operating at sea with success. The tendency, with increasing sizes, will be to adopt fresh water cooling, both for the pistons, cylinders and cylinder heads, so completely to obviate the chances of local heating and, therefore of excessive stressing due to deposits of salt or sand. The extra complication of the coolers, circulated with salt water, for extracting the heat from the fresh water and of the extra pumps is a minor matter compared with the security so attained.

Complicated Construction

The diesel engine still remains a massive and somewhat complicated power plant, and no movement toward simplification has yet definitely set in. Undoubtedly, when shipowners and their superintendents have come to appreciate the principles of operation of this prime mover, a number of so-called "gadgets" at present introduced as safeguards, and in order to make assurance doubly sure, will be discarded. Only in this way does it seem possible definitely to attain greater simplicity. As regards reducing the mass of the engine, there are only two ways in which this can be achieved, either by increasing the mean effective pressure in the cylinders or the piston speed.

The government factor in the design of all internal combustion engines is the heat flow factor. The greater the cylinder dimensions, the more vital is this consideration. This factor, expressed in pounds of fuel consumed per square inch of combustion volume surface per unit of time, is directly dependent upon the piston speed and for a constant factor of heat flow, the lower the piston speed the higher the mean effective pressure possible. The converse is equally true.

The tendency for some years past has been to reduce this heat flow factor

with increased size, but the gradual improvements in materials and designs which have permitted of increasing size, now allow augmented heat flow by increasing the mean effective pressure in the cylinders and the piston speed.

The piston speed with a single acting internal combustion engine can well be considerably higher than with steam practice because of two considerations—firstly that the maximum pressure for which bearing surfaces are designed is only maintained for approximately 12½ per cent in the case of 4-stroke engines and 25 per cent of the cycle for 2-stroke engines, and secondly because the pressures on the bearing and guide surfaces are not reversed as with double acting steam engines. The inclination, therefore, especially with 4-cycle machinery, is to increase piston speed.

Single or Twin Screws

One point that is not perhaps sufficiently emphasized is that, with diesel machinery, the higher the power per cylinder the greater the weight per horsepower, so that for a given power of ship there is a definite saving in machinery weights when twin-screw engines are adopted in comparison with single-screw machinery. This saving in weight means a certain reduction in cost, although the lesser machinery cost is balanced by the increased cost of hull, due to the extra bossing of the stern and the two tunnels for the two lines of shafting. The chief advantage of single-screw machinery lies in the reduction in personnel which is possible, as obviously an increased engine room complement is required to superintend and to maneuver two engines. Nevertheless, for powers above 2000 to 3000 shaft horsepower, twin-screw diesel engines will be the rule for some time to come and are to be advocated.

The saving in fuel costs with diesel machinery must be considered in conjunction with the lubricating oil consumption, which is higher than with steam machinery. At first, this subject was not perhaps fully appreciated, but today it can confidently be stated that, with the latest internal combustion machinery, the problems associated with the necessary lubrication of the piston rings and the forced feed to the main bearings have been most conscientiously attacked, and the consumption of lubricating oil has been reduced to a figure of relatively small importance, 1.5 gallons of lubricating oil for all purposes per ton of fuel oil consumed should be the relation, and has been attained.

How shall the auxiliaries be driven?

So far as steering gear is concerned, the electric-hydraulic system has proved itself efficient and is finding increasing favor even on steamships. For lights and fans, electricity is also required. For the heating of a ship, steam is still the most convenient and the least costly method, although either exhaust raised steam at sea and some combination of electrically generated heat and hot water pipes will no doubt find increasing favor in the future. Therefore, for the remainder of the plant, such as winches and pumps, the choice lies between steam or electric drive. Where first cost is concerned, considerable advantage lies on the side of steam, but the more economical solution from the point of fuel consumption, is undoubtedly the electric drive. Electric current is generated by diesel-driven dynamos, which, except in special cases, should not be less in number than three. For reasons of interchangeability these three should be of the same size. One should be sufficient for normal sailing at sea, two are required for maneuvering the ship or for working cargo fully in port, and one is always a standby. The consumption of fuel for working cargo and pumps in port with banked fires in a steamship is about ten times the amount of fuel required by the diesel electric system of auxiliary working on similar motorships.

Will Gain Favor

The foregoing refers particularly to 4-cycle engined ships. When 2-cycle machinery is adopted, the practice of driving the scavenging pumps separately from the main engine to permit of rotary machines being used for this duty will undoubtedly gain favor. In this case, the diesel-driven generators for supplying electric current for general duties, as well as for driving these blowers, become of very considerable size, approximately 25 per cent of the power of the main engine. Such figures lead naturally to a consideration as to whether the correct angle from which to review and attack the problem is not to regard the machinery of the ship as a central electric power station delivering current to electric motors for propulsion and all the other numerous duties.

The motorship has arrived today at the position where the shipowner has few remaining doubts as to the capacity of the oil engine. The three factors of first cost, personnel and upkeep are still regarded, in some quarters, as deterrents. The first cost for similar sized steamers and motorships is much in favor of the former. This is the general comparison made, although it is

false. A smaller motorship will suffice because of the saving of space due to the type of machinery, principally in bunkers, in increased radius of action per ton of fuel (although a motorship must generally carry more fuel than a coal-fired steam ship to get full advantage of favorable fuel markets) and decreased personnel.

In inviting tenders, shipowners would be well advised, in order that they may accurately assess the position of the motorship, to state simply the duty of the ship and the sea speed required, leaving the contracting naval architect and marine engineer to decide the best combinations of features to meet the requirements at the minimum first cost. Such are the advantages of the motorship, especially on certain and many important trade routes, that the extra first cost is quickly written off.

The subjects of personnel and upkeep are interdependent. There is available an increasing number of engineers conversant with the first prin-

ciples of internal combustion, and most engine builders are only too anxious that their engineers who have worked on the construction of the machinery shall follow it to sea and form the nucleus of the engine room complement. Under such conditions fears of excessive upkeep are not well founded.

When next marine construction is energetically pursued, as undoubtedly it must be, if we are to maintain our natural and supreme position as a sea-going and trading nation, the motorship will be in the forefront. Today at sea the tonnage of motorships is 6.5 times what it amounted to in 1914, and of the present total more than one-half, or 848,000 tons, represents 149 vessels of over 3000 tons. Of ships under construction at the present time those to be engined with internal combustion machinery form such a proportion as to make the future for this new type appear extremely bright.

* * *

In the discussion of this paper, Prof.

Sir James Henderson said that although the author favored the diesel engine, that was only one step in the development and would not necessarily be the final step. It must not be overlooked that the horsepower, in the case of diesel engines, was proportional to the square of the linear dimensions, and the weight was proportional to the cube, so that the weight per horsepower went up proportionately to the linear dimensions. The internal combustion turbine would form a much better solution, but awaited the discovery of some new material. There were now, materials which would run red-hot and maintain their elastic properties, as in the case of some of the tool steels, and if a similar material could be obtained which would withstand still higher pressures and maintain its elastic properties and tensile strength, the problem of the internal combustion turbine would be solved, except, perhaps, for troubles of expansion. The gearing

Survivor of Naval White Squadron Struck from Navy List

THIRTY-SIX years in active service, having made practically every port in the world and navigated almost every charted channel, without the loss of a single man and with no mishap more severe than a grounding which merely cleaned her bottom—such is the record of the good ship DOLPHIN, the navy's one and only dispatch boat, which has recently been adjudged obsolete and turned over to the inglorious and unappreciative hand of the ship-scrapper. It is a record not approached by any of the long line of war craft and auxiliaries that has made up the navy register.

In her day, the DOLPHIN created a real stir. Costing a grand total of \$482,000 she precipitated more volumes of discussion before her keel was laid and more argument when she was delivered, because of dispute between the new political administration and the builder, than the new \$30,000,000 battlecruiser. She was, in effect, the fourth vessel in the American navy and of a type that led naval officers of her day to describe her as a "very necessary aux-

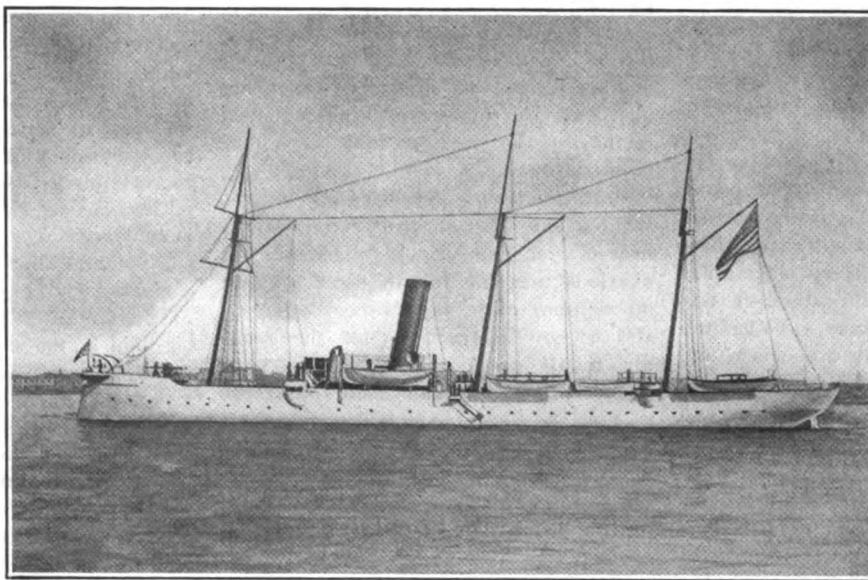
iliary to the naval fighting force for duties requiring lightness and speed."

The DOLPHIN was one of the A-B-C ships of the early navy, keeping company with the ATLANTA, BOSTON and CHICAGO. She was authorized by act of congress, March 3, 1883, and the contract awarded to John Roach & Sons, Chester, Pa. Her keel was laid on Oct. 11, 1883, and her launching took place on April 12, 1884. She did not go into commission until Dec. 8, 1885, owing to the friction between her builder and the navy department.

Despite the delay and the controversy

prompted by it, the DOLPHIN was more than 10 years old when the Spanish-American war broke out, and then she was assigned to the North Atlantic station under Commander H. W. Lyon. From 1899 to 1916 she was on special duty as dispatch vessel for use of the secretary of the navy. From late in 1916 to September, 1917, she was stationed at the Virgin islands, and then in September, 1917, took a congressional committee from Washington to Cuba. In 1918, she was made flagship of the patrol squadron, and in April 1921, became flagship of the special service squadron

in Central American waters. Dec. 8, 1921, saw her placed out of commission, and marshaled for final judgment. In that she did not revolutionize the auxiliary craft of navies, the DOLPHIN was a disappointment. To her iron plates, naval officers ascribe much of her long life. For a war craft of her size, length 240 feet, beam 32 feet, and displacement 1486 tons it is believed she holds the record for service unmarred by the loss of life or serious accident.



DISPATCH VESSEL DOLPHIN WHICH SET RECORD FOR AMERICAN NAVY

problem was also quite a serious one.

Prof. G. G. Stoney said he still thought there was a very large future for the reciprocating engine and the turbine for cargo vessels. Sooner or later automatic stoking at sea would be used in the same way as on land. Experiments were being carried out in that direction now. Double-reduction gears were still in their infancy, and troubles with these would be overcome. The great need was perfect workmanship and flexibility. It had been suggested that a torsionally flexible gear would assist in arriving at a solution, and it was possible that something like the McAlpine floating frame would help in solving the problems of double-reduction gearing, if it could be combined with torsional flexibility. He agreed with the author that electrically driven auxiliaries should be used to a much larger extent at sea than they were. To a certain extent, in using steam driven auxiliaries the heat could be recovered by feed heaters, but only to a moderate extent. In many cases, the amount of auxiliary steam was much greater than that absorbed by feed heaters, and, therefore, more economical engines were required. For this reason, he believed there would be a very large development of electrically driven auxiliaries, not only in diesel ships, but also in some steam-driven ships.

Internal Combustion Turbine

T. Westgarth said that the question of whether a vessel should have oil-firing either under the boilers or in internal combustion engines must be determined largely by the trade in which it was engaged. At many of the outports oil was costly because it had to be carried there by other ships, but where ships were trading with ports, or passed ports where they could get oil cheaply, then these were the cases in which oil could be used most advantageously. The question of steam auxiliaries was a most important one, but here again the particular circumstances must be taken into account. If they were dealing with oil-driven vessels running in certain trades, where it was necessary to keep the tanks warm to prevent solidification, it was necessary always to have a boiler under steam, and then it was wiser and easier to have steam-driven auxiliaries. No general rule could be applied, and the question must be considered in detail for every particular case.

Prof. F. C. Lea referred to the internal combustion turbine described at the Paris meeting of the Institution of Mechanical Engineers this year, but he did not think the only troubles with

this type of machine would be with the materials. There would be the same troubles with regard to the gearing that at present existed with the steam turbine, but they would be accentuated, and they would have to go a long way with the development of the gearing before success was achieved because of the higher speeds of the internal combustion turbine. The development of the internal combustion turbine, however, depended mainly upon the introduction of new materials. At the present time there were no materials which were likely to fulfill the conditions. A development not mentioned in the paper was the Still engine. In most internal combustion engines about one-third of the heat generated in the cylinder was given as effective work, one-third was thrown away in the exhaust gases and one-third in the cooling water. This question of cooling of all internal combustion engines in order to keep uniform stresses was very important, and in regard to the heat that was thrown away in the exhaust gases the Still engine attempted to utilize it. It would become an important point whether they were going to utilize the exhaust heat for the generation of power in the engine itself or use it for auxiliary purposes outside the engine.

Prof. G. W. O. Howe said the fact that electrical equipments on ships had given trouble was because the plant had not been specially designed for the job. The design of electrical machinery for this purpose did not involve any new principle; it only involved making the plant rugged and robust and designing liberally and it was not a problem that any electrical engineering firm of good standing could not tackle straight away and guarantee a thorough good job.

J. V. Coonan referred to cracks in the cylinder heads of diesel engines, and said that this difficulty was being overcome by the use of tungsten steel in the form of liners to take the higher temperatures.

Prof. Hudson-Beare, president of the section, said that in the matter of the use of oil, the English should not overlook the fact that the bulk of their oil supplies came from other countries, and it would be serious for the country if all its merchant vessels were converted to oil, and then for some reason the foreign supplies were cut off. It seemed to him, therefore, that it would be necessary to continue researches as energetically as possible into the production of a home-produced oil.

Mr. Richardson, replying to the discussion, said that the Anglo-Persian

Oil Co. was rapidly building up a large British oil business, and that England is not even now dependent on foreign countries for all its supplies. The cargo boats represented 90 per cent of the whole tonnage of the United Kingdom, the other 10 per cent being the large liners. In these cargo vessels the reciprocating engine was standard, and it was with that the diesel engine had to compete, and not with steam turbines.

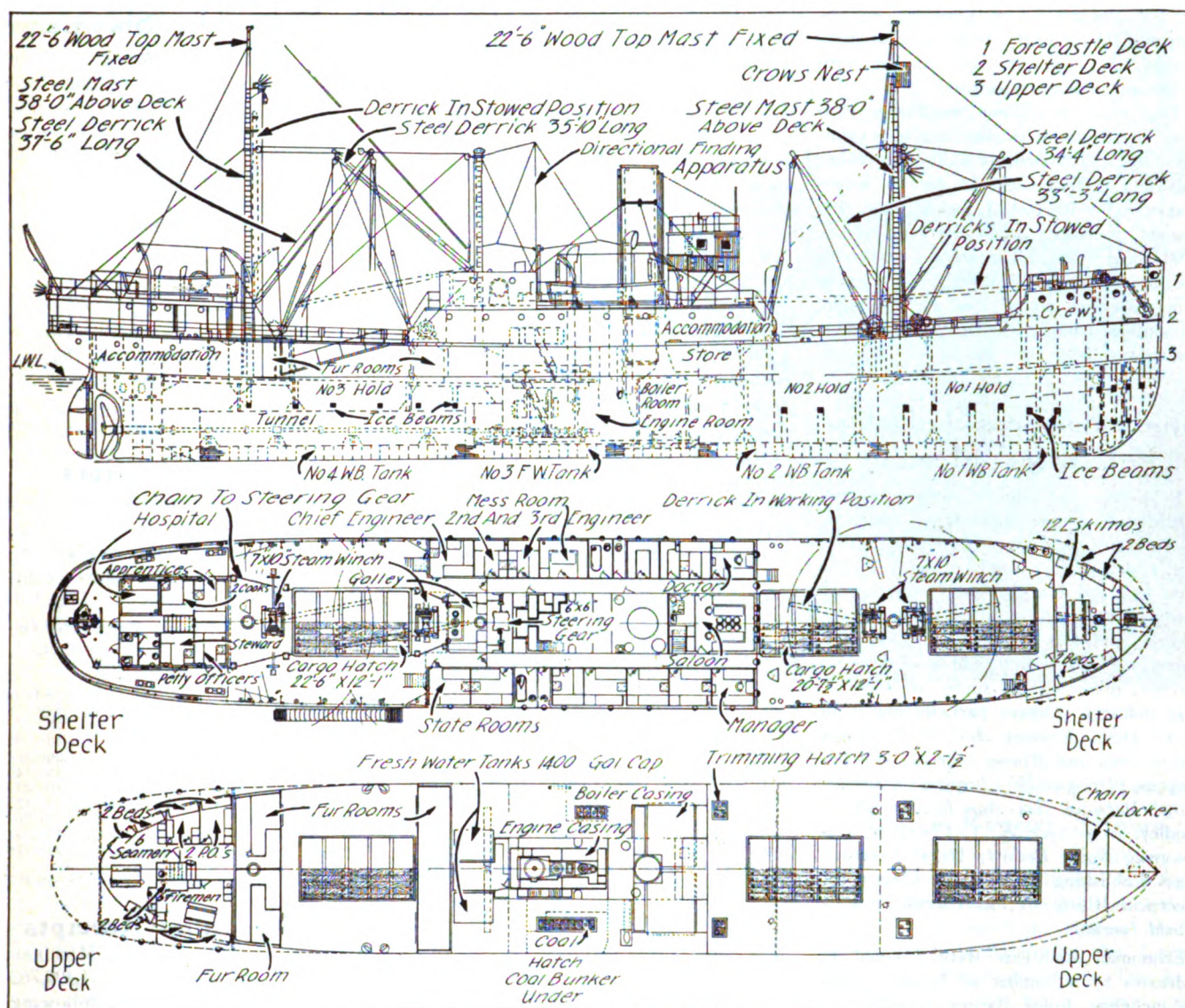
Puts Dieseled Generators on Navy Ships

Installation of diesel engine driven electric generators in the U. S. S. MARYLAND, COLORADO, and WEST VIRGINIA marks another step in the development of motive power for capital fighting ships. The COLORADO and WEST VIRGINIA, which is now nearing completion have two 400-kilowatt, 240-volt generators, each driven at 350 revolutions per minute by a 950 horsepower Busch-Sulzer diesel engine. Two balancing sets will be provided to enable the generators to be used on each ship's 120-volt lighting circuit. A similar installation will be placed in the MARYLAND upon her return from Brazil, and it is also planned to equip the new airplane carriers LEXINGTON and SARATOGA with two of the same type of generators.

After this installation is completed these ships will be able to dispense with fires under their boilers when lying in port in moderate weather. Extension of electric pump equipment in addition to other electrical appliances which have been placed in ships since the completion of the NEW MEXICO class will enable these great ships to carry on all their port activities without the use of steam. Large economies in fuel oil consumption will result upon the installation of these diesel engine driven generators.

Naval engineers have been working for years to develop this improvement of motive power for warships. The installation of diesel engine generators will be watched with great interest because it marks another important success in the various steps in the evolution of naval engines. The navy designed and built the first large ship with turbine engines about 12 years ago.

The U. S. S. NEPTUNE was the first big ship in the world to be driven by a reduction gear. Then naval engineers designed and built the U. S. S. JUPITER which was the first big ship to have electric drive and the U. S. S. MAUMEE which was the first big ship to have diesel engine drive. The next step in the development was the designing and building of the NEW MEXICO in which oil burning boilers furnish the steam which drives turbine generators which in turn



FIRST VESSEL EVER DESIGNED FOR HUDSON'S BAY CO.

generate electricity for use in electric motors which drive the ship's propellers.

The next step will be the ship in which diesel engine generators furnish electricity for driving the main propell-

ing motors and for all other machinery in the ship, and in which boilers will be used only for heating purposes. The installation of the diesel engine generators in the MARYLAND, COLORADO, and WEST VIRGINIA will provide for a thorough test

of these generators under service conditions and this will enable naval engineers to develop better diesel engine generators which will then be installed in the next ships which the United States navy decides to build.

Builds Fur Carrier for Hudson Bay Trade

OF ALL the vessels owned and operated by the Hudson's Bay Co. in the 252 years of its fur trade, only one has been built directly for the company and especially constructed for its particular needs. That is the steamer BAYESKIMO, recently put in service by the company. She was completed this year by her builders, the Ardrossan Dry Dock & Shipbuilding Co., Ltd., Ardrossan, Scotland.

The BAYESKIMO is built to withstand ice pressure, the framing at the forward end being especially stiffened with heavy bulb angle intermediate frames

being introduced and shell plating thickened. A heavy stringer is fitted through the whole length of the vessel with athwartship beams of pitch pine logs, 12 x 12 inches, attached to it and spaced every six feet.

Special vermin proof fur rooms are fitted in the tween decks for the safe carrying of valuable fur cargoes. Accommodations are provided for 12 passengers in addition to the large complement of officers and crew required for his trade.

The vessel is 212 feet between perpendiculars, has a molded breadth of 33

feet 6 inches, and a molded depth of 14 feet 6 inches to the upper deck and 22 feet to the shelter deck. She is designed for 1450 deadweight tons on a draft of 16 feet 4 inches. Her gross tonnage is 1391 and net tonnage 777. Capacity of the holds for grain is 87,680 cubic feet and for bales, 77,850 cubic feet.

Equipment of this fur carrier includes four 7 x 10-inch steam winches; four derricks, two of three tons, and one each of five and 10 tons; steam and hand windlass, 8 x 9 inches; steam steering gear, 6 x 6 inches; electric light-

ing set, engines 6½ x 6-inch stroke and dynamo 10 kilowatts; and wireless telegraphy, 1½ kilowatt set together with direction finding apparatus.

The main propelling machinery consists of triple expansion engines, cylinders, 16-inch, 27-inch, 44 x 30-inch stroke; and two boilers each 12 feet 6 inches diameter by 10 feet 3 inches long, 180 pounds pressure, with heating surface 2700 square feet. The engine auxiliaries are fitted to include ballast donkey pump, general service pump, feed donkey pump, circulating pump, ash hoist, feed water heater and filter.

Study Business Outlook at Publishers' Meeting

Publishers and editors of business papers discussed national business conditions at the annual conventions in New York, Oct. 11-13, of the Associated Business Papers, Inc., and the National Conference of Business Paper Editors. Ten editors reviewed conditions in 10 lines of basic industry. R. V. Sawhill, editor of *MARINE REVIEW*, presented the survey of the marine industry. Others participating were S. O. Dunn, *Railway Age*; J. E. Spurr, *Engineering and Mining Journal*; William Haynes, *Drug and Chemical Markets*; Floyd Parsons, *Gas Age Record*; A. I. Findley, *Iron Age*; W. T. Chevalier, *Engineering News Record*; David Becroft, *Class Publishing Co.*; W. N. Onken Jr., *Electrical World*; V. E. Carroll, *Textile World Journal*.

Economic conditions were covered in addresses by a number of business leaders including Julius Barnes, president of the Chamber of Commerce of the United States; O. D. Street, general manager of distribution of the Western Electric Co.; Bennett Chapple, of the American Rolling Mill Co.; Henry B. Dennison, president of the Dennison Mfg. Co.; Theodore H. Price, editor, *Commerce and Finance*, and Dr. Julius Klein, director of the bureau of foreign and domestic commerce on behalf of Herbert Hoover, secretary of commerce, who was ill.

H. C. Parmelee, editor of *Chemical and Metallurgical Engineering*, New York, was chosen president of the conference to succeed C. J. Stark, editor of *Iron Trade Review*, Cleveland.

A. O. Backert, vice president and general manager of the Penton Publishing Co., Cleveland, was elected president of the Associated Business Papers, Inc.

Obituary

Andrew Macfarlane, consulting engineer and naval architect of Macfarlane, Garmay & Co., 32 Broadway, New York, died at his home in Brooklyn recently. He was born in Sun-

derland, England, March 17, 1882. He served his engineering apprenticeship with William Doxford & Sons, in Sunderland. After completing his apprenticeship he was continuously engaged in the design, construction, operation and maintenance of ships and their machinery at William Doxford & Sons, Parsons Marine Steam Turbine Co.

New Shipbuilding Orders Gain in Month

EIGHTEEN vessels, from two small river barges of 135 tons up to a Great Lakes bulk freighter of 12,000 tons, are represented in new shipbuilding contracts reported in the past month. This is seven more than a month ago and with those reported in September *MARINE REVIEW* makes a total of 58 for the three months. Announced new inquiries are few but as considerable shipbuilding is figured privately it is expected the new contracts will be maintained at about the present rate. The past month's business is reported as follows:

SHIP CONTRACTS PLACED

Staple Coal Co., Boston, two barges, to Kelley Spear Co. yards, Bath, Me.
Catskill Evening line, New York, one freight boat of 1200 tons, to Staten Island Shipbuilding Co., Port Richmond, N. Y.
Baltimore & Ohio railroad, one car float, to Bethlehem Shipbuilding Corp., Wilmington, Del.
Owner unidentified, two 500-ton river steamers, to Howard Shipyards Co., Jeffersonville, Ind.
Brooklyn Eastern District Terminal, one car float of 1000 tons, to New York Shipbuilding Corp.
Dravo Contracting Co., Pittsburgh, two barges each of 135 tons, for builder's account.
Cleveland-Cliffs Iron Co., Cleveland, one 600-foot 12,000-ton bulk freighter, to Great Lakes Engineering Works, Ecorse, Mich., yard.
Martha's Vineyard & Nantucket Steamboat Co., subsidiary of New England Steamship Co., one 200-foot passenger ship, to Bath Iron Works, Bath, Me.
Bureau of lighthouses, Washington, river tender to replace the *GOLDENROD* and to cost \$128,000, to Charles Ward Engineering Works, Charleston, W. Va.
Owner unidentified, two special type boats, to Interlake Engineering Co., Cleveland.
Inland Transportation Co., Louisville, Ky., four steel barges, to Jones & Laughlin Steel Co., Pittsburgh.

SHIP CONTRACTS PENDING

Liberty Transit Co., Pittsburgh, plans rivet steamer, 250 feet long and 50 feet wide, of side-wheel type.
Whittelsey & Whittelsey, naval architects, New York, bids in, for completion of three hulls, each 385 feet, built by International Shipbuilding Co., Pascagoula, Miss.
New York Central railroad, five steel barges, Federal Shipbuilding Co. low bidder.

and Wallsend Slipway & Engineering Co. About nine years ago, Mr. Macfarlane went to New York and worked for the Todd Shipyard Corp. as estimator. In 1915, he began business for himself as consulting engineer and ship surveyor. In 1919 Mr. Macfarlane went into partnership with John Garmay, former superintendent of the Prince line. Mr. Macfarlane was a member of the Society of Naval Architects and Marine Engineers.

September Ore Shipments

Shipments of iron ore from the Lake Superior district during September totaled 6,801,299 tons. In comparison with September, 1921, when the movement was 3,913,122 tons, an increase of 2,888,177 tons is shown. Total shipments to Oct. 1 are 33,111,238 tons. Detailed shipments by ports are:

Port	September, 1922	To Oct. 1, 1922
Escanaba	820,520	3,325,625
Marquette	311,758	1,625,903
Ashland	928,712	4,642,345
Superior	1,781,670	8,484,713
Duluth	2,159,754	10,183,478
Two Harbors	798,885	4,849,174
Total	6,801,299	33,111,238
1922 increase	2,888,177	14,450,044

Lake Erie Receipts

Out of a total of 6,801,299 tons shipped from upper lake ports in September, Lake Erie ports received 5,456,476 tons, as shown by figures compiled by *MARINE REVIEW*. The balance on dock Oct. 1 was 9,028,708 tons against 9,661,365 tons on Oct. 1, 1921. Detailed figures are:

Port	Gross tons
Buffalo and Port Colborne	599,578
Erie	180,673
Conneaut	1,134,185
Ashtabula	1,266,357
Fairport	151,340
Cleveland	1,107,237
Lorain	530,475
Huron	99,864
Toledo	171,791
Detroit	214,976
Total	5,456,476

Lake Michigan Receipts

Receipts of ore at Lake Michigan ports for September were 1,499,762 gross tons, as shown in the following record by ports:

Port	Gross tons
South Chicago, Ill.	796,132
East Jordan, Mich.	17,873
Boyne City, Mich.	1,935
Milwaukee	.....
Indiana Harbor, Ind.	182,307
Gary, Ind.	501,495
Total	1,499,762

Pittsburgh Traffic Doubled

Freight hauled on the rivers of the Pittsburgh district in September totaled 2,164,830 tons, practically double the traffic carried in August. The gain over the preceding month, 1,076,595 tons, was due almost entirely to the increase in coal tonnage which alone was 1,060,018 tons greater than in August, reflecting the increased production following settlement of the coal strike. The month's shipments in tons by rivers and classifications were as follows:

Commodity	Allegheny	Monongahela	Ohio	Total
Coal	73,180	1,137,002	248,717	1,458,899
Coke	.....	1,433	.....	1,433
Gasoline	1,050	990	300	2,340
Gravel	75,705	80,637	115,416	271,758
Iron and steel	.....	21,970	6,538	27,508
Packet cargo	.....	.....	5,311	5,311
Sand	127,455	130,590	129,367	387,412
Unclassified	152	4,237	5,780	10,169
Total	277,542	1,376,859	511,429	2,164,830

Big Freighter Launched at Sparrows Point

STEELORE, 20,500-ton turbine driven freight vessel, was launched at the Sparrows Point, Md., plant of the Bethlehem Shipbuilding Corp., Ltd., on Aug. 15. She is owned by the Ore Steamship Corp., New York, being the last of three vessels of this capacity and same general type to be built for this company at Sparrows Point.

The STEELORE is arranged for carrying iron ore and when completed will be put into service for the transportation of ore from South America to the United States. She is of the same size and similar in construction to the BETHORE, the large combination ore-and-oil vessel recently delivered at Sparrows Point to the Ore Steamship Corp., but will be propelled by two Curtis-type turbines with Falk single reduction gears instead of by reciprocating engines.

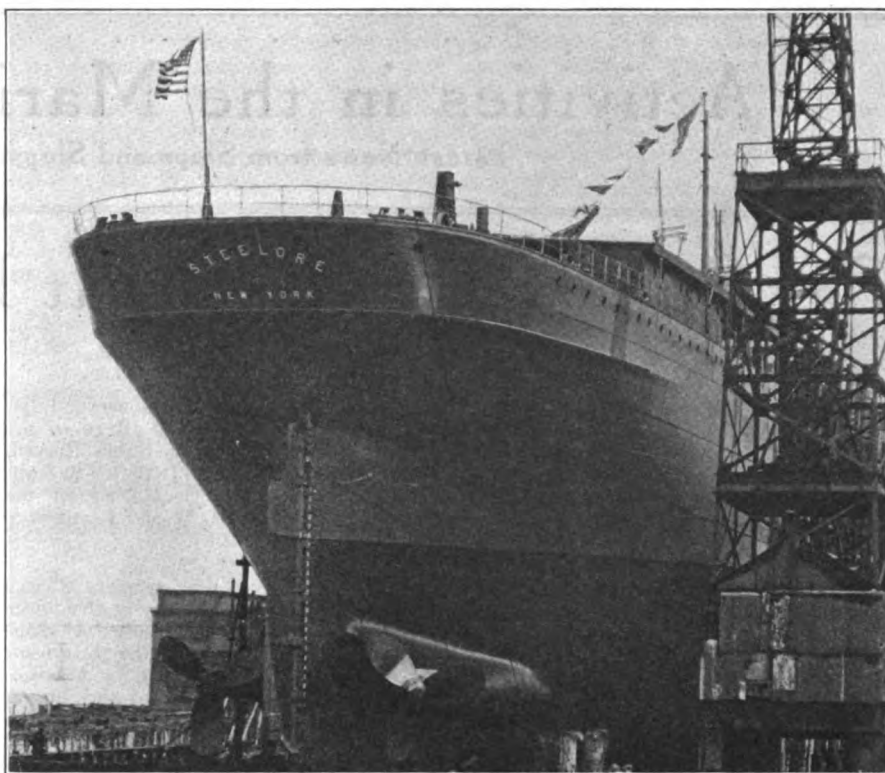
The principal particulars of the STEELORE are as follows:

Length, overall, feet, inches	.... 571 6
Length, B. P., feet, inches	..... 550 1
Breadth molded, feet	..... 72
Depth, molded, feet	..... 44
Draft, loaded, feet, inches	..... 32 4
Deadweight capacity, tons	..... 20,500
Speed, knots	..... 11½
Turbines, Curtis with single reduction gear.	
Type of boilers, single end, Scotch	
Number of boilers	..... 3
Size of boilers, 17 feet 6 inches diameter x 12 feet long	
Kind of fuel, oil.	
Type of oil burning equipment, Bethlehem (Dahl).	

To Build Drydock in 1923

Carl Hartman, Green Bay, Wis., plans the construction of a floating drydock early in 1923. Mr. Hartman has formed the Green Bay Drydock Co. to build and operate the plant as an adjunct to other vessel building and repairing interests at that point. The drydock will be constructed of concrete in twelve 50-foot sections, each 60 feet wide, and will cost about \$750,000 complete. E. J. Morrison, consulting engineer, 53 West Jackson boulevard, Chicago, is preparing plans and specifications and will take bids on the structural work as well as machinery and equipment.

Construction and repair of boats and barges, building of bridges and tanks and the fabrication of other forms of structural steel is the purpose of the Mid-West Boat & Barge Co., Inc., which has been organized at Grafton, Ill., with \$50,000 authorized capital. Its plant already is



THIRD LARGE ORE FREIGHTER FOR BETHLEHEM INTERESTS, READY FOR LAUNCHING AT SPARROWS POINT

complete and in operation. Its principal officers are at Water Front and Oak streets, Grafton. Officers of the company are: President, Albert A. Coyle; vice president, John F. Erdelen; secretary-treasurer, Samuel Edwards; and manager, Maurice Killeen.

Install Oil Burners

Todd Dry Docks, Inc., Seattle, recently closed additional contracts for equipping vessels with the Todd oil burning system. The latest order is for 72 burners, with new furnace fronts, to be placed on the fast coastwise steamer H. F. ALEXANDER. It will take several weeks to complete this work since owing to the steamer's close schedule, she spends little time in port. On each visit to Seattle, several burners will be installed until the complete battery is in position. Other new orders have just been closed for installing the company's oil burning system on the Oriental liner NANKING, plying out of San Francisco, and also on the new tank steamer ELABETA, the latter order coming from the Los Angeles Shipbuilding & Drydock Co. Contracts for placing the burners on the steamers DOROTHY ALEXANDER and VICTORIA were completed some time ago.

The port commission at New Orleans has decided to construct two new steel and concrete covered wharves, each 50-feet wide and approximately 700 feet long.

Shipyards More Active, Labor Report Shows

Employment in steel shipbuilding in the United States was 10 per cent higher in August than in July, according to the first report in a new statistical service prepared by the United States department of labor. The payroll gain for the same period was 11.6 per cent.

According to the department's bureau of labor statistics, 15 shipbuilding companies reported employing 12,088 workmen in August as against 10,985 in July, an increase of 1103. The same companies in July, based on weekly payrolls, paid their workers approximately \$1,295,809 and in August approximately \$1,445,613.

Will Build Big Dock

The Algiers Dry Dock & Ship Repair Co. Ltd., Algiers, La., is planning early enlargement of its drydock and ship repair plant. The company operates a 2000-ton dock and plans to add a 10,000-ton drydock to its facilities. Opposition has developed in the New Orleans district to the leasing of the big naval dock. This opposition at one time aroused a report that the Algiers company would abandon its plans for expansion provided the navy dock was leased for commercial use. Officials of this company state that their plans will be carried through regardless of the disposition of the 18,000-ton navy dock.

Activities in the Marine Field

Latest News from Ships and Shipyards

Car Supply Limits Great Lakes Traffic

BY MYERS L. FEISER

LAKE shipping, like most other American industries, has felt the pinch of the car shortage which has been the greatest single deterrent to the movement of vessels. Grain ships have congested the elevators at lower lake ports while waiting for cars. The elevators have been filled to overflowing. Coal cargoes have been offered slowly, although approaching the rate necessary to fuel the Northwest, and ore freight has been slowed also by inability to move the mineral away from unloading docks.

Ore shipments up to Oct. 1 totaled 33,111,289 tons for the season. This was after 6,801,299 tons had been shipped in September. The tonnage on Oct. 1 was 14,450,044 tons ahead of the season last year and about 11,000,000 tons in advance of all of last year. October coal shipments began at the rate of 1,125,000 tons a week, equivalent to 22,487 cars, sufficient, if maintained, to meet the needs of the Northwest. Shipments for the season to Oct. 9 totaled 10,836,083 tons as against 18,962,914 tons at the same time last year and 16,403,360 tons in 1920.

Shipbuilding interests added another vessel to the 1922 fleet under construction when the Cleveland-Cliffs Iron Co. placed with the Great Lakes Engineering Works a contract for a 600-foot bulk freighter, for 1923 delivery. This made eight boats of this class ordered this season.

When the steamer W. D. MATHEWS went ashore at Cove island recently, she damaged her cargo of grain. She was bound for Port McNicoll but because of a line of waiting ships at the elevator there, she was sent to Midland to unload and then went to Collingwood for repairs.

The steamer JAMES MACNAUGHTON, first American 600-foot bulk freighter to be built since 1920, was launched at the Ecorse yard of the Great Lakes Engineering Works Sept. 23. She belongs to the Wilson Transit Co., has a capacity of 12,000 tons and was to be commissioned late in October. The new freighter is equipped with triple expansion engines, three Scotch boilers and has been given the highest rating awarded by the American Bureau of Shipping. She was built under supervision of Capt. Daniel Buie of the Wilson fleet and was brought out by Capt. Edward R. Morton, master of the GENERAL GARRISON, who has been succeeded on that vessel by Capt. George H. Stewart of the S. H. ROBBINS. Other transfers resulting include that of Capt. J. J. Phillips of

the A. W. OSBORN to the ROBBINS, Capt. W. G. Coles of the W. D. REES to the OSBORN and promotion of Ralph Russell, mate of the H. P. MCINTOSH, to captain of the REES. H. G. Meyers, of the CHARLES S. HEBARD, is chief engineer of the MACNAUGHTON.

Collision between the steamers JAMES E. DAVIDSON and ARCTURUS in the lower Detroit river in October resulted in damage to 25 bow plates on the DAVIDSON and caused the ARCTURUS to be beached. The DAVIDSON was taken to the Lorain yard of the American Shipbuilding Co. The ARCTURUS, loaded with coal, had to be lightered and floated.

Buffalo interests have purchased the tug CONNEAUT of the Great Lakes Towing Co.'s fleet and she has been transferred from Ashtabula to Buffalo.

Work of recovering the coal cargo of the barge JOHN J. BARLUM which sank five miles off Cedar Point was stopped recently by United States engineers who held that the coal can not be removed unless the wreck also is removed.

Charles Ford, first assistant engineer of the steamer LEONARD B. MILLER of the Columbia Steamship Co., died recently in Milwaukee. He was 42 years old. The body was taken to Ashtabula for interment.

Property of the Interstate Coal & Dock Co., Green Bay, has been taken over by the Cleveland-Cliffs Iron Co. and will be enlarged.

Adam E. Cornelius of Boland & Cornelius, Buffalo, and chairman of the board of the American Steamship Co. which recently bought control of the Buffalo Steamship Co., has been elected a member of the board of trustees of the Buffalo Trust Co.

N. H. BOTSFORD, first of four full canal size steamers built for the George Hall line by the Frazer-Brace Co., Three Rivers, Que., reached Ogdensburg recently on her maiden trip with 1280 cords of pulp wood, the largest cargo of the kind ever to go up the St. Lawrence.

Late in September the three passenger steamers of the Great Lakes Transit Corp. completed the summer season and were tied up.

In Keweenaw waterway, Lake Superior, light No. 9 was destroyed by collision late in September and was replaced with a post lantern on a float 16 feet

above water until the light can be rebuilt.

More than 20,000 bushels of grain had to be lightered before the steamer AUBE, which went ashore near Wolf island recently, could be released.

Records of the race between the steamers CITY OF ERIE and TASHMOO, which was run between Cleveland and Erie in June, 1901, and which the CITY OF ERIE won, have been filed with the Cleveland Historical society by T. F. Newman, general manager of the Cleveland & Buffalo Transit Co.

Because of losses sustained when the fleet at Buffalo last winter was blown ashore in a heavy gale, underwriters contemplate making an extra charge for boats moored under the breakwater for the winter, it is reported.

Grain stocks at Fort William and Port Arthur at the beginning of October were 4,000,000 tons less than on the same date a year ago. The total this year was 13,643,682 bushels. In the week immediately following, receipts were 14,746,773 and loadings 15,095,463 bushels.

Record cargoes carried by lake freighters and the years in which they were made have been announced by the Lake Carriers association as follows:

Iron ore—14,137 gross tons, W. GRANT MORDEN, 1920.
Soft coal—15,532¾ net tons, D. G. KERR, 1919.
Hard coal—14,614 net tons, H. G. DALTON, 1920.
Limestone—14,084 gross tons, D. G. KERR, 1918.
Wheat—503,156 bushels (15,095 net tons), W. GRANT MORDEN, 1919.
Oats—760,066 bushels, (12,161 net tons), W. GRANT MORDEN, 1915.
Flaxseed—445,000 bushels, (12,460 net tons), SHENANGO, 1916.
Rye—514,000 bushels (14,392 net tons), COL. J. M. SCHOONMAKER, 1922.
Corn—432,980 bushels, (11,623 net tons), THE HARVESTER, 1921.

Free schools of the Lake Carriers association will be conducted again during the coming winter, a combined engineering and navigation school at Marine City and separate schools on the two subjects at Cleveland. Courses begin Jan. 3. David Gaehr will continue in charge of the Cleveland school in marine engineering and Capt. John C. Murray will continue at the head of the Cleveland navigation course. Harry

Stone again will be on the job at Marine City.

* * *

The United States lake survey reports the monthly mean stages of the Great Lakes for the month of September, 1922, as follows:

Lakes	Feet above mean sea level	August	September
Superior	602.63	602.69	
Mich.-Huron....	580.56	580.33	
St. Clair	575.33	575.19	
Erie	572.50	572.33	
Ontario	246.56	246.03	

Lake Superior is 0.06 foot higher

than last month, 0.02 foot higher than a year ago, 0.07 foot below the average stage of September of the last 10 years. Lakes Michigan-Huron are 0.23 feet lower than last month, 0.29 foot higher than a year ago, 0.43 foot below the average stage of September of the last 10 years. Lake Erie is 0.17 foot lower than last month, 0.16 foot higher than a year ago, 0.18 foot below the average stage of September of the last 10 years. Lake Ontario is 0.53 foot lower than last month, 0.60 foot higher than a year ago, 0.19 tember of the last 10 years.

third class service from New York to Bremen. This service will be started with the PITTSBURGH, the 16,600-ton oil burner which has been in service from Boston and Philadelphia to Liverpool since she was commissioned last summer. The Pittsburgh will be joined in the Bremen service Nov. 28, by the CANOPIC of the Montreal-Liverpool service. Both ships will stop at Cherbourg and Southampton enroute to Bremen.

* * *

The Munson line has entered the intercoastal trade, to the surprise of operators in that trade. With the rate war at its height, entrance of a new competitor, which had confined its activities to eastern waters, attracted unusual interest. The steamer MUNAIRES was the first to be placed on the general cargo berth at Baltimore, Philadelphia and New York for Seattle, Portland, San Francisco and Los Angeles. Francis H. Robinson, formerly of the California-Atlantic Steamship Co., the army transport service, and the Williams Steamship Co. is in charge of the service.

* * *

The shipping board, has awarded stevedoring contracts at the following ports to the following bidders: At Mobile, to the Mobile Stevedoring Co.; at Gulfport, to the Ladrner & Dent Stevedoring Co., and at Pensacola, to M. A. Quina. The new rates are effective Nov. 1. A reduction has been secured at Mobile of approximately 17 per cent on lumber and timber, 8 per cent on cotton and rosin, 5½ per cent on turpentine and 16½ per cent on general cargo. At Gulfport the rates are approximately 17 per cent lower on lumber and timber, 8 per cent on cotton, 16½ per cent on rosin and turpentine and about 10 per cent on general cargo. The rates have been reduced at Pensacola approximately 17 per cent on lumber, 22 per cent on timber, 23 per cent on rosin and 11 per cent on turpentine.

From East and South

A NEW house flag has been unfurled by the United American lines, 39 Broadway, New York. It is blue with a white design which consists of a compass rose with an American eagle superimposed and the letters "U. A. L." inscribed in the center. This design follows the plan of the company's official emblem which was recently adopted.

* * *

The shipping board vessel HOG ISLAND left Alexandria Oct. 7, with the first shipment of Egyptian cotton, this season, for Boston consisting of 8453 bales.

* * *

The schooner TREMONT, one of the assets of the Tremont Trust Co., which failed recently, has been sold to R. Parmenter, Cambridge, Mass., for \$20,020. The boat will be overhauled and placed in service.

* * *

Plans are in progress for the dry docking of the steamer MAJESTIC, the largest vessel in the world, at the Commonwealth drydock, South Boston, in November. This drydock is said to be the only one on this side of the Atlantic capable of handling vessels of this size. The MAJESTIC is 915 feet large.

* * *

Foreign arrivals for September at the port of Boston total 208, the largest number for September in many years. Last year the total for the month was 95 foreign arrivals.

* * *

The Westinghouse broadcasting radio station at Springfield, Mass., is to broadcast information covering foreign trade as prepared by the New England office of the bureau of foreign and domestic commerce.

* * *

A new freight and passenger steamship service between Stamford, Conn., and New York has been inaugurated by the Harlem Navigation Co., Inc., and the Interstate Steamship Lines, Inc.

* * *

For the first time in two years the Boston unloading docks have been congested to such an extent that incoming vessels have had to anchor in the

roads. This time the cause has been largely coal arriving from England to relieve the shortage in New England. Since Sept. 1, more than 50 ships have docked at the port with over 700,000 tons of foreign coal. During the same period nearly 100,000 tons was unloaded at Portland, Me.

* * *

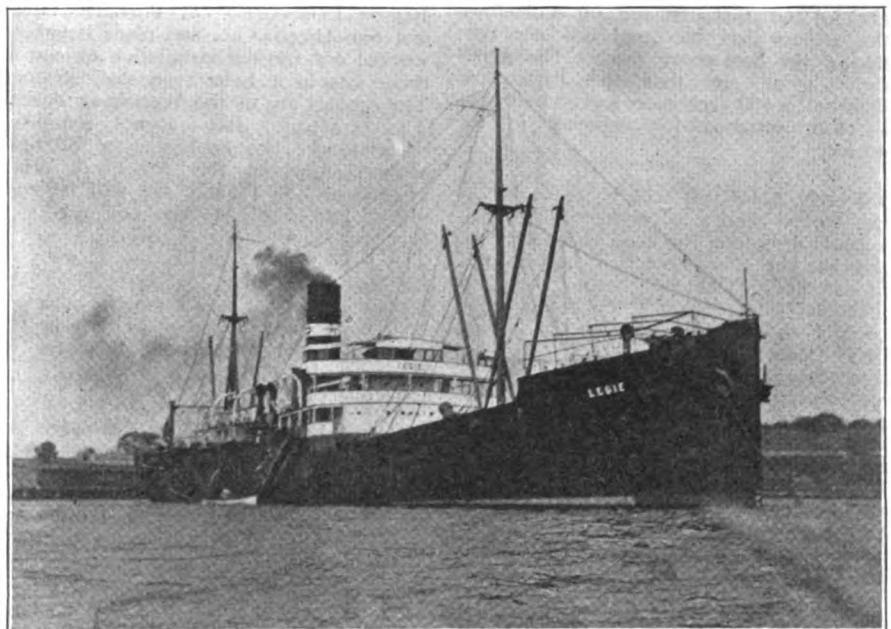
The war department plans to start soon the work of removing reefs in the channel at Stamford, Conn., which at present make arrival and departure of vessels dependent upon tides.

* * *

The QUAKER CITY, bound from Scotland to Boston consigned to E. Arthur Tutein, Inc., and carrying 5200 tons of pig iron, ran on the rocks off Aberdeen, Scotland, and at first was reported sinking, but later advices indicate that she will be able to return to port for repairs.

* * *

Beginning Nov. 9, the White Star line will inaugurate a new cabin and



FIRST MERCHANT SHIP FLYING CZECHOSLOVAKIAN FLAG TO VISIT AMERICAN PORT

Steamer LEGIE at Providence, R. I. One of the new European countries, Czechoslovakia has no coast line but has arranged to utilize the ports of neighboring countries in an effort to build up a merchant marine. She is planning a regular service between Hamburg and United States ports

On Californian Shores

THE Mexican Navigation Co. has placed two more steamers on the runs between west Mexican ports and San Francisco. These are the *NEW CHINA* and *COAHUILA*, which, with the steamer *MEXICO* now in that service, will give the company three ships in this trade.

During the past few months motorship arrivals at San Francisco have been increasing rapidly, until on one day, late in October, there were seven in port, and four due to arrive. Of the seven, five flew foreign flags and two were in the coastwise service. A year ago, the arrival of a motorship at San Francisco was an event; today it causes no more comment than the daily return of the fishing fleet to Fisherman's wharf.

Only three bids were received at San Francisco in October when the historic army transports *SHERIDAN*, *SHERMAN*, *LOGAN*, *BUFORD* and *CROOK* were offered for sale. The *CROOK* is tied up at Norfolk, Va.; the other four are in San Francisco bay. The bidders were John C. Ogden and L. Meyers, of San Francisco, and the Barde Steel Co., Portland, Ore. Additional new transports have been assigned to take the places of those offered for sale. All of the transports saw service in the Spanish-American war.

Application for the removal of the bridges over the estuary at Oakland, Calif., and the boring of a tunnel under the estuary to connect Oakland and Alameda, has been asked of Col. Herbert Deakyne, army engineer for the district, by 30 industrial firms of the two cities. It is declared the bridges impede navigation, and that tonnage up and down the estuary has increased 300 per cent during the last seven years. The applicants point out that the harbor at Oakland is 900 feet wide, and should have a clear entrance for shipping in the estuary.

Nearly \$2,000,000 will be expended by the United States government in widening and deepening the main channel across the bar to San Francisco harbor, and in dredging Oakland harbor, on the mainland side of San Francisco bay, according to announcement by Col. Herbert Deakyne, army engineer for the first San Francisco district. The rivers and harbors bill, passed by congress Sept. 12, while not carrying any appropriation for the work, provides that the channel be made safer and deeper by dredging to a depth of 40 feet at low tide, and allowing an additional two feet for accumulation of silt. The channel is to be made 2000 feet wide. It is only 36 feet deep.

Struthers & Barry, San Francisco, have been appointed Pacific coast agents for the Moore & McCormick Co. for that firm's intercoastal business, which was established by the clearing of the steamer *COMMERCIAL PATHFINDER* from

New York early in October for San Francisco. The second vessel of the new service is *NYANZA*, clearing from New York October 23, for this port. Other steamers are to follow in the same run.

The Munson line has placed four vessels in its canal service. The four ships are the *MUNAIRES*, *MUNRIO*, *MUNDELTA* and *MUNINDIES*.

The Moore Shipbuilding Co. has been awarded contracts for repair work on the Union Oil Co. tanker *LA PURISIMA*, damaged in collision with the steamer *FLORIDIAN*, near San Pedro, recently; the repairs on the *FLORIDIAN* and the overhauling of the United States dredger *SAN PABLO*. The Moore company's bids were *SAN PABLO*, \$4,733; *FLORIDIAN*, \$19,815; and *LA PURISIMA*, \$3,500. Contract for reconditioning the two full-rigged ships, *ARAPAHOE* and *EDWARD SEWELL*, recently purchased by the Alaska Packers' association, also has been awarded to the Moore company.

Delegates to the first Pan-Pacific Commercial conference held in Honolulu Oct. 25 to 31, inclusive, comprised several shipping men from San Francisco.

From the Northwest

THREE diesel engines, each of 1000-horsepower, have been purchased from the shipping board by the Benson Lumber Co., of Portland, Oreg., and San Diego, Cal., and plans have been worked out for the installation of one of these sets in a Lake type steel steamer. The engines are of the Werkspoor design. The company has about completed negotiations for purchasing a 3200-ton steamer now on the Atlantic. When brought to the Pacific, she will be converted into a diesel type and used for carrying lumber to Californian ports. The Benson company has moved most of its lumber in huge log rafts from the Columbia river. Diesel power, however, in the type of vessel indicated, is believed to offer an economical means of transportation.

Portland shipping interests, who recently made strong representations to the shipping board asking for the allocation of two 502-foot type passenger liners for operation between the Columbia river and the Orient, are hopeful their request will be granted. It is reported that the *PRESIDENT HARRISON* and *PRESIDENT HAYES*, interned at Oakland, Cal., will be assigned to this new route.

For use in Alaskan waters, the Alaska Steamship Co. has purchased the steel freighter *MEDON*, 5250 tons deadweight,

Among them were Robert Dollar, of the Dollar Steamship Co.; I. M. Hibberd, of the Parr Terminal Co., Oakland; E. O. McCormick, of the Southern Pacific Co., and Hall McAllister.

The schooner *OLGA*, general merchandise, in the Alaskan service, was totally wrecked at Safety Island, two miles east of Nome, recently.

The power schooner *ANVIL*, Seattle to Berthel, which went aground some time ago on Kelp reef, Hero straits, has been floated and towed into Port Angeles by the United States coast guard tug *SNO-HOMISH*. Damage to the *ANVIL* proved to be less than at first reported.

The power schooner *GOLDEN WEST* No. 2 was burned to the water's edge while unloading salmon in Humboldt bay, near Eureka, Calif., recently. J. C. Crome, owner and master, estimated the loss at \$18,000 with \$10,000 insurance.

The first shipping board vessel to make a round trip under the 65-cents-a-day ration allotment for the crew was the tanker *STOCKTON*, which arrived recently in San Francisco. The *STOCKTON* went from San Francisco to Manila and return on the allotted ration, and when the ship reached San Francisco, the entire crew, with the exception of the licensed officers, left her, declaring that the ration was insufficient, and that they would not serve again on a ship so limited as to food supply.

from the shipping board. This vessel was built in 1920 by the Hanlon Shipbuilding Co., Oakland, Cal., and is well adapted for freighting ore and other heavy cargo from Alaska to Seattle. The Alaska Steamship Co. already has a large fleet in operation but additional tonnage was made necessary by the increase in business with the Northwest this year.

The wooden steamship *NIKA*, built at a Mississippi yard and recently brought to the Pacific, is in Seattle undergoing repairs after being ashore on Vancouver island. The *NIKA* was damaged to the extent of \$17,500. She has been sold to Mexican interests for operation along the Mexican coast.

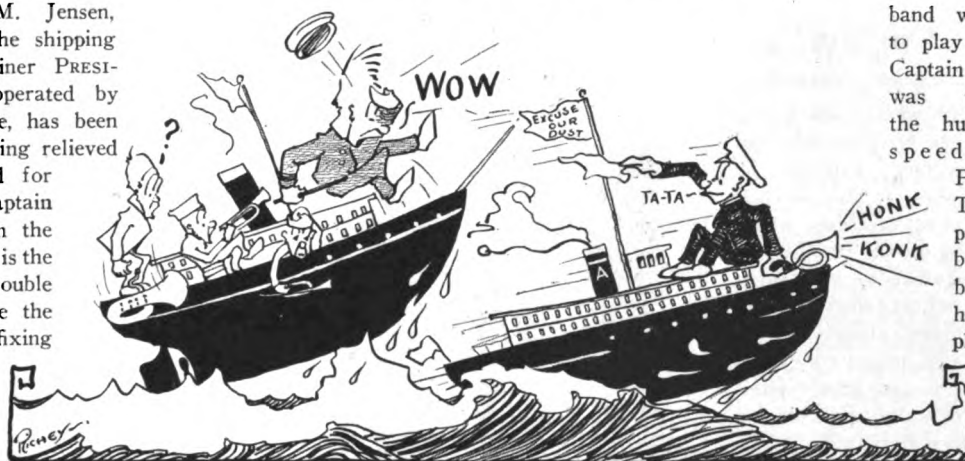
With the assignment of four steamers to the intercoastal route, the Munson Steamship Co. has actively entered into the coast to coast business. Vessels of this fleet have previously been chartered for extra cargoes in the intercoastal trade but now it is intended to operate them on regular schedule. The McCormick Steamship Co. will act as Pacific Coast agents.

Admiral line and shipping board officials are working out a new schedule for operating the government 535-foot liners between Seattle and the Orient. At present, these steamers leave Seattle

Old Glory Wins but American Captain and Canadian Band Lose

CAPT. M. M. Jensen, master of the shipping board express liner **PRESIDENT GRANT**, operated by the Admiral line, has been disciplined by being relieved of his command for one voyage. Captain Jensen's pride in the American flag is the cause of his trouble because he broke the board's rule fixing 17.5 knots as the maximum speed of the transpacific

liners. On a recent voyage, the **PRESIDENT GRANT** was over taken at sea by the Cana-



dian Pacific liner **EMPRESS OF RUSSIA**. As the latter was about to pass, her

band was on deck ready to play a triumphal march. Captain Jensen's patriotism was unable to stand the humiliation and he speeded up the **PRESIDENT GRANT**. The British competitor was left behind and the band did not have a chance to play. Most Pacific Coast shipping men believe Cap-

tain Jensen did right but he is now suffering for violation of orders.

every second Saturday. For the purpose of strengthening the service, it is planned to establish a schedule of sailing every 12 days. This will be done by reducing the lay days at both ends of the route. It is proposed to cut the total round trip time from 70 to 60 days. These American steamers, it is announced, are enjoying increased popularity with the traveling public, while the growth of cargo offerings is also highly gratifying.

Wheat exporters at Portland, Oreg., are preparing to equip their terminals with facilities for handling grain in bulk. Last season, shipping in bulk was regarded as an experiment but now it is recognized as a permanent custom and it is necessary to remodel elevators and other terminal equipment for shipping in bulk. Steamship owners also as a rule have accepted the change and charters are now closed on the basis of grain in sacks and/or in bulk.

Establishing the best record in several years, the lumber trade from Puget sound in August totaled 62,618,000 feet compared with 49,899,000 feet in August 1921. The largest gain was shown in the movement to California of 35,130,000 feet as against 2,390,000 feet in the same month last year.

All the warehouses and terminal piers in Seattle have reduced the storage rate on canned salmon from 1¼¢ to 1¢ per month. This was done to standardize charges and to stimulate the movement of cargo through that port.

Vancouver, B. C., is planning construction of a lumber assembly wharf 400 feet in length, convenient to railroad and water transportation.

The Northwest Rivers and Harbors congress met at Everett, Wash., Sept. 29 and 30. Port development and improvement of waterways in the northwest section of the country were discussed at length by I. E. Goodner, chief engineer of the Columbia river basin; H. K. Benson, of the University of Wash-

ington; Col. E. H. Schulz, U. S. A., division engineer for the Northwest, J. N. Teal, traffic expert of Portland; G. F. Cotterill, Seattle port commissioner and others.

Wreck of the steam schooner **THOMAS L. WAND**, recently lost near Point Sur Cal., is attributed to the combination of uncertain currents and the peculiar properties in the rocks on this shore which it is claimed have a magnetic effect upon compasses.

The Canadian steamer **MARGARET COUGHLAN**, built two years ago at Vancouver, B. C., has been foreclosed by the bondholders and H. A. Stevenson has been named receiver. The vessel is now carrying a lumber cargo from British Columbia ports to Montreal.

Officials of the port of Portland, Oreg., are investigating the advisability of substituting diesel engines for steam power in the port's dredge tenders.

Capt. E. P. Bartlett, who commanded the express liner **H. F. ALEXANDER**, when she went ashore off the Washington coast in August, has been restored by the act of Supervising Inspector William Fisher. The inspector reversed the decision of the trial board which investigated the mishap. The lower board suspended Captain Bartlett for four months but Captain Fisher took issue and returned Captain Bartlett's license. Because of the close schedule on which the big passenger liner is operated, the Admiral line has inaugurated a new system whereby two commanders alternate. This gives each master a rest ashore after a strenuous voyage.

Olympia, Wash., has decided to form a port district with a view of inaugurating a campaign of port improvements.

Crossing the Pacific in 91 days, after passing through many severe storms, the Chinese junk **AMOI** has arrived at Victoria, B. C., from Amoy and Shanghai. Capt. George Waard brought the queer looking craft from the Orient. His

Chinese wife acted as mate. The crew numbered seven sailors. The **AMOI** registers only 23 tons.

Indicating the increase in the movement of wheat in bulk, figures just made public show that half of the grain shipped from Portland this season has gone in bulk.

The Port of Portland is considering the purchase of a dipper dredge plant and three hopper barges to augment its present fleet of four pipeline dredges. The present equipment is held insufficient to carry on the work now under way.

The plant of the Norway Pacific Construction & Drydock Co., at Everett, Wash., is being dismantled and a shipment of the equipment, including drills, forged steel and shipbuilding machinery, has been dispatched by steamer to Philadelphia. This yard acquired considerable notice because it was never operated, having been completed about the time the construction boom ended.

Public officials, citizens and shipping men participated in the exercises opening and dedicating the new port terminals of Grays Harbor at Hoquiam, Sept. 26. The plans were prepared by C. A. Strong, an engineer of Tacoma. By dredging, a low water depth of 28 feet is assured. The terminal is so planned that additions and extra berthing slips may be provided as the growth of deep sea commerce warrants.

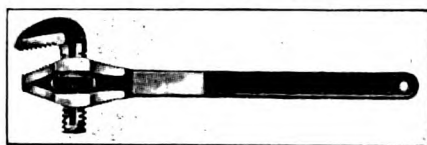
Completion of a railway freight terminal, costing \$1,250,000, at Portland, Oreg., is expected to result in greatly facilitating the dispatch of cargo at that port. The new terminal provides five miles of additional yard trackage.

Government officials have authorized the establishment of a sea post service on the shipping board steamers operating from Seattle to the Orient. Each of the five liners will be remodeled to provide quarters for handling mail and mail clerks will be assigned to each vessel.

Equipment Used Afloat, Ashore

Pipe Wrench—Air Compressor—Saw Frame—Oil Purifier

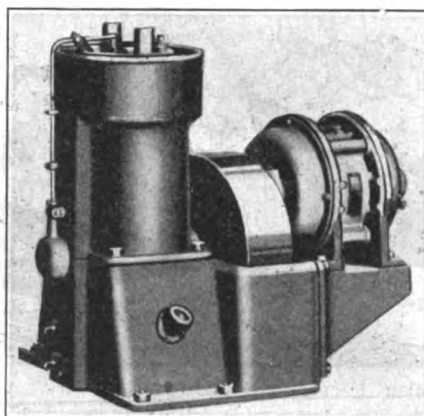
A NEW wrench with several improvements has been brought out by the Greenfield Tap & Die Corp., Greenfield, Mass. The wrench has the "end opening" feature which is familiar to users of machinists' wrenches. Its application to pipe turning may be seen in the accompanying picture. The advantage given for the wrench over the conventional style is the ease with which it can handle pipes in corners, close to walls, and similar confined places. The person using it can set it straight on the pipe as he would a pair of pliers, instead of having to fit the jaws on from the side. The wrench has only three parts, a handle and jaw in one piece, which is drop forged and heat treated; a movable jaw, also drop forged and heat treated; and a hardened steel nut. There are no springs, rivets, frame or pins, all these parts being eliminated. In spite of the absence of springs, the wrench takes hold and releases instantly at the option of the user. The new wrench has been designed for maximum strength. The 14-inch size has withstood stresses in ex-



cess of 4700 inch pounds without slipping or bending. The wrench is being manufactured in 8, 10, 14, 18, and 24-inch sizes, of which the three smaller sizes are already on the market.

Small Air Compressor Is Motor Driven

A new design of small air compressor just announced by the Ingersoll-Rand Co., 11 Broadway, New York, is of the vertical type and is adapted for light loads in marine work. In addition to the belt driven model, each size is built in a self-contained electric motor unit driven through a pinion and internal gears. A view of the motor driven compressor is shown in the accompanying illustration. The important features of the new design are the constant level lubrication system, the constant speed unloader for the plain belt drive machines, the centrifugal unloader for start and stop control machines and the increased size of the water reservoir cooling pot. The constant level lubrication system automatically maintains the oil at



ELECTRICALLY GEAR DRIVEN AIR COMPRESSOR WHICH IS MADE IN EITHER WATER COOLED OR AIR COOLED SIZES

a constant level, which insures an adequate supply being distributed.

The constant speed unloader controls the unloading of the compressor by opening the inlet valve automatically when the receiver pressure rises above that at which the unloader is set to operate. When the pressure falls below a predetermined amount, the unloader releases the inlet valve automatically and allows the compressor to return to work again. The centrifugal unloader allows the compressor to start at no load, such as is essential when automatic start and stop control is used, and permits the electric driving motor to come to full speed before the load is thrown on automatically. The smallest size compressor is built with either ribbed cylinder for air cooling or with a water jacket, all other sizes being built with the water jacket.

Watertube Boilers for Fast River Steamers

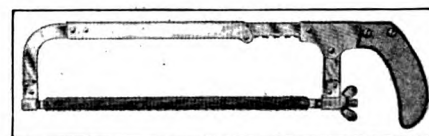
The Babcock & Wilcox Co., New York, has been awarded the contract to supply four watertube boilers for the two new river steamers to be built for the Wilmington Steamboat Co., by the Pusey & Jones Shipbuilding Co., Wilmington, Del., from designs by the George G. Sharp Co., naval architect and consulting engineer, New York. The boilers will be of 2-inch tube type, having each 3739 square feet of heating surface, or a total for two boilers, for each vessel, of 7478 square feet. They will be arranged for oil fuel and will be equipped each with five Babcock & Wilcox mechanical atomizing oil burners, operating under assisted draft.

Give Chime Buoy Trial

Installation of a chime buoy near St. George, Staten Island, has been made as an experiment to overcome the dangers which lurk in a storm or a fog from having so many ordinary bell buoys and fog bells as are found in New York harbor. Designed by J. T. Yates, superintendent of the third lighthouse district, the buoy has four bells of different size which gave out different notes. As the waves rock the buoy, knockers strike against all four bells which send out notes of different pitch which make the buoy distinctive. If the experiment proves successful, other chime buoys will be placed.

Develops Hack Saw Frame

Equipped with a large, comfortable grip, eliminating the hand cramp, an easy grip hack saw frame has been put on the market by the Consolidated Tool Works, Inc., 296 Broadway, New York. It is of solid steel construction, designed for hard work; the blades are



tightened by means of a wing nut which is located in back out of the way and may be faced four ways; the handle is made of hardwood and the frame is nickel plated and polished.

Use of Purifiers To Aid Oil Economy

Increased use of oil in ship operation and the general requirement for greater economy aboard ship has led to considerable study along these lines. In order to minimize waste and to obtain highest efficiency in the use of lubricating oils, machinery is now being employed for oil purification. Among the manufacturers of this type of machinery is the De Laval Separator Co., New York. The accompanying illustration shows one of this company's purifiers installed on the White Star liner MAJESTIC. On her first voyages her two purifiers were pressed into special service. A leak in a brine coil discharged into the ship's oil supply making the oil unfit for use. The oil was

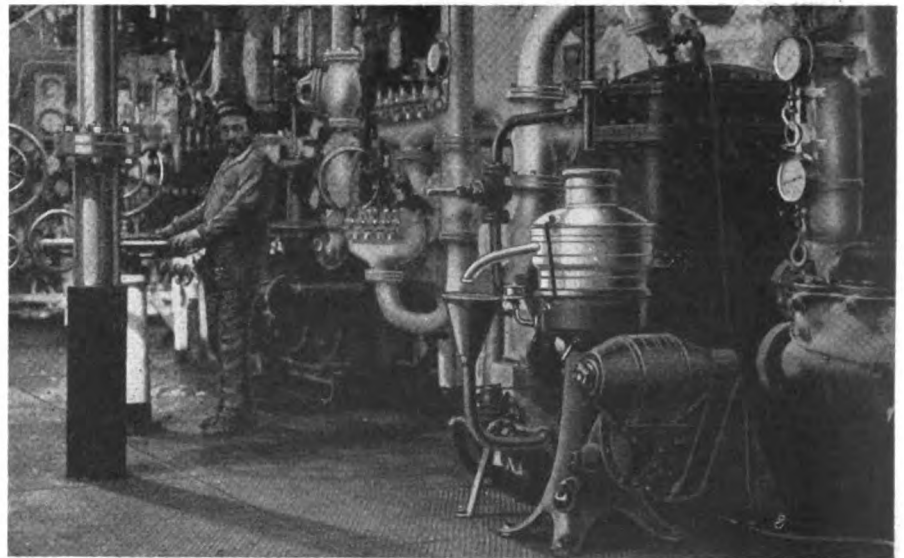
promptly purified and put back into the lubricating system. Cast iron pipes used in the ship's lubricating system started to scale on the next voyage and the oil was sent through the purifier. One of the machines is installed in connection with the main turbine oiling system and the other is in the shaft tunnel to take care of the oil used to lubricate the shaft bearings.

New Cable Ship Will Be in Deep-Sea Service

By Lieut. Col. C. A. Secane

Work is under way at Seattle in converting the *DELLWOOD* into a cable ship. This steamer was turned over by the shipping board to the war department for the use of the signal corps in its Pacific cable service. She will be the largest cable ship under the American flag, will be best equipped and will be able to lay cable in any ocean. The shipyard work is interesting since the number of cable ships is small. A deep-sea submarine cable ship differs from an ordinary vessel in the arrangement of the hold and in the kind of machinery used. The hold of the vessel accommodates large circular cable tanks, resembling oil tanks, in which the cable is coiled. The *DELLWOOD* will have five tanks of sufficient capacity to accommodate a little more than 1000 miles of cable.

To the popular mind, submarine cable does not appear much different from wire rope with diameter a little greater than 1-inch. The apparatus and machinery must be arranged on the decks to permit the paying out and hauling in of this cable. In depths of two or three miles, it can be seen that a vast length of cable exists between bottom and the ship, and the machinery must be such as not to let the cable fly out too fast and at the



INSTALLATION OF OIL PURIFIER ON BOARD WHITE STAR LINER MAJESTIC

only a few such ships in existence. The signal corps of the army is fortunate in having developed a cable personnel as the result of operations on the Washington-Alaska cable system, where it has operated about 2600 miles of cable for the past 20 years.

Deep-sea submarine cable operations differ from operations in shallow water in that provision must be made for grappling or picking up cable from a depth of several miles. It becomes a very elaborate procedure for notwithstanding all known methods of navigation it is not an easy thing to go out into the vast ocean and locate and pick up a substance no longer than any ordinary rope. Shore operations seldom call for long stretches of cable and for this reason much smaller ships are in use.

The signal corps of the army laid down and operated the complete system of sub-

changed. She was built by the Hanlon Ship Building & Dry Dock Co., Oakland, Cal., and delivered in April, 1920. She is of 5210 tons deadweight. Her length is 320 feet 9 inches, breadth 46 feet and depth 26 feet 9 inches. She has triple expansion engines of 1800 horsepower and three Foster water-tube boilers.

Late Marine Patents

Copies of any one of these patents can be obtained by forwarding 25 cents in stamps to Siggers & Siggers, patent attorneys, National Union Insurance building, Washington, and mentioning MARINE REVIEW.

1425563—Propeller lathe, Leland B. Whipple, Rochester, N. Y., assignor to Fitz Empire Double Pivot Lathe Co., Auburn, Me.

1426337—Signalling apparatus for detecting submarines, Elmer A. Sperry, Brooklyn.

1426882—Ship for submarine navigation, William M. LeMoine, Chicago.

1427307—Propeller, Roy C. McKenney, St. John, N. B., Canada.

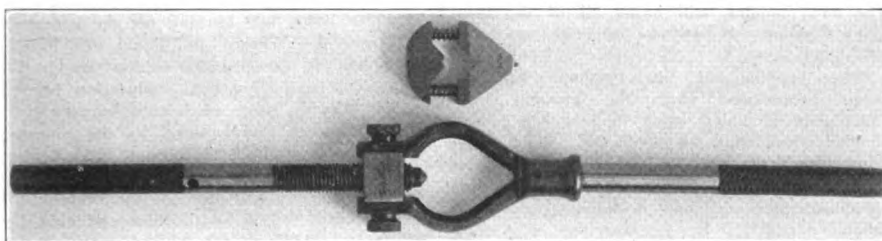
1427526—Marine vessel, Herman G. C. Frahm, Brahmssalle, Hamburg, Germany.

1428012—Life saving device for submarines, Jacob De Stefano, Kansas City, Mo., assignor of one-half to Pete Rappas, Kansas City.

1428218—Hull construction for submarines and like vessels, F. Cossutta, Trieste, Italy.

Brings Out New Tool

A new tool brought out by the Martin Machine Co., Turners Falls, Mass., will take all round dies from 5/8-inch to 2 1/4-inch outside diameter and all taps from 1/4-inch to 1-inch inclusive. This makes it possible to eliminate several stocks and tap wrenches for various requirements. In using the dies the tap jaws are removed and the loose handle is raised or lowered by means of a sliding block and thumb screws until it lines up with the spot hole in the side of the die and the tightening of the thumb screws holds the handle in place. The point of the die stock which engages the spot hole of the die is made of steel to withstand the wear.



TOOL WHICH ELIMINATES NECESSITY FOR HAVING SEVERAL STOCKS AND TAP WRENCHES

same time not to impede the progress of the ship on its course when paying out cable. As a cable costs from \$1000 to \$2000 or more per mile it will be seen that the problem is to maintain a direct course and properly to pay out the cable. This can be kept at an economical figure or made an expensive procedure.

Deep-sea submarine cable personnel is scarce due to the fact that there are

The author is lieutenant-colonel, signal corps, and acting chief signal officer of the army.

marine cables connecting the various islands of the Philippines till the civil government was prepared to take them over from the military. The Alaska-cable system was laid down in 1903.

The *DELLWOOD* will be used on the Alaska system and will replace the *BURNSIDE*, which has been a cable ship for more than 20 years. She was captured from the Spanish in 1898. The *DELLWOOD* should be in service for 30 years.

The name of the *DELLWOOD*, will be

Business News for the Marine Trade

Capitalized at \$250,000 the Medina Lake Boat Works, Medina Lake, Tex., recently was incorporated.

The Glendaruel Steamship Corp., Wilmington, Del., recently was incorporated in Delaware with \$2000 capital stock. The company is represented by the Corporation Trust Co. of America.

The capital stock of the Hudson River Freight Line, New York, has been increased from \$50,000 to \$51,000.

J. P. McManus, attorney, 27 William street, New York, represents the Brooklyn Scaling & Welding Co., Brooklyn, N. Y., which was recently incorporated with a capital stock of \$10,000.

The Verplanck Shipyard & Repair Corp. has been incorporated at Verplanck, N. Y., by C. R. and G. R. Bleakley and W. P. Foss. The company is represented by Barber & Gibbonney, attorneys, 165 Broadway, New York.

The capital stock of the Chicago Steamship Co., Chicago, recently was increased from \$620,000 to \$2,600,000.

Capitalized at \$200,000 the Adelpia Steamship Corp., Wilmington, Del., recently was incorporated under the laws of Delaware to build and operate boats, etc.

The S. S. T. Navigation Co., 1220 Hudson street, Hoboken, N. J., recently was incorporated with a capital stock of \$100,000, to engage in freighting, storage wharfing, etc.

The Skansie Ship Building & Transportation Co., Gig Harbor, Wash., has been incorporated with \$100,000 capital stock by Mitchell Skansie and Joseph Skansie.

The Armidale Steamship Corp. recently was incorporated under the laws of Delaware with a capital stock of \$2000. The company is represented by the Corporation Trust Co. of America.

Capitalized at \$500,000 the Minnesota Atlantic Transit Co. recently was incorporated by A. Miller McDougall, W. M. Alworth and S. R. Kirby, Duluth. The company is represented by the Corporation Trust Co. of America.

The Home & Foreign Steamship Co., Wilmington, Del., recently was incorporated under the laws of Delaware with a capital stock of \$2000. The company is represented by the Corporation Trust Co. of America.

Capitalized at \$25,000 the Union Navigation Co., Seattle, recently was incorporated by Lewis Tagholm and Rasmus Jensen. The company is represented by Gerard T. Mogan, Seaboard building, Seattle.

Capitalized at \$20,000 the Long-Bell Ferry Co., Portland, Oreg., recently was incorporated by Ben C. Dey, Alfred A. Hampson and I. Edward Tonkon. The company is represented by Dey, Hampson & Nelson, 815 Yeon building, Portland.

Dillon & Dann Steamship Co., Miami, Fla., recently was incorporated with a capital stock of \$150,000.

The Donnelly Dry Dock Co., New York, recently was incorporated under the laws of New York state with a capital stock of \$250,000 by W. T. and N. E. Donnelly and D. W. Barnes.

The Smith & Williams Shipbuilding Co., Salisbury, Md., has acquired an 8-acre site adjoining its plant which it is understood it will utilize for future extensions. Present plans call for a 250-foot cradle railroad.

For the purpose of conducting a general stevedoring business the Stevedoring Co. of

Business Changes

Lynn W. Nones has been appointed eastern manager of the marine department of the Diamond Power Specialty Corp., Detroit, with offices at 90 West street, New York. He formerly was manager of the marine department of the Griscom-Russell Co., with which company he was associated for three and one-half years. Prior to that time, Mr. Nones was with the Worthington Pump & Machinery Corp. The present appointment follows the growth of the Diamond company's marine business and the prospects for a more active demand for marine type soot blowers. The Diamond company now maintains marine offices in Baltimore, Philadelphia, Norfolk, New Orleans, San Francisco and Seattle. Great Lakes shipping is handled directly from Detroit.

* * *

Fay, Spofford & Thorndike, consulting engineers, have moved from 15 Beacon street, Boston, to 200 Devonshire street, that city.

Philadelphia, 415 Otis building, Philadelphia, has been organized by A. F. Porter and Nelson H. Gilderslieve.

The Eclipse Engineering Co., New Orleans, has been incorporated to deal in marine supplies, etc., by H. R. MacLeod, F. C. Lacassagne and F. N. Owens. The company has opened an office at 333 Chartres street, New Orleans.

The construction of a new shop building by the Alabama Dry Dock & Shipbuilding Co. is under consideration. It is understood the new building will house all of the company's shops. It will be of brick and steel construction.

The International Sea Products Co. has been incorporated under the laws of Delaware with a capital stock of \$250,000.

The Green Bay Drydock Co., Green Bay, Wis., plans the construction of a floating drydock. It will be constructed in twelve 50-foot sections, each 60 feet wide and will cost about \$750,000. E. J. Morrison, consulting engineer, 53 West Jackson boulevard, Chicago, is preparing plans.

The wharf and various sheds at the army base in New Orleans, recently were damaged by fire.

The Willamette Iron & Steel Works, Portland, Oreg., has been awarded contracts to construct 80 steel pontoon catamarans for the government engineer's office of Portland.

The Garland Steamship Corp. plans to increase its capital stock by 66,000 shares of preferred stock, half of which will be issued.

The Susquehanna Line of New York has been incorporated under the laws of Delaware with a capital stock of \$100,000. The company operates shipping board vessels from New York and Philadelphia to Scandinavian and Baltic ports.

With a capital stock of \$1,000,000 the New

England Transportation Co. recently was organized at Beaufort, N. C., to engage in a steamship freight business between Bridgeport, Conn., and Beaufort, N. C., Jacksonville, Fla., and Savannah, Ga.

The Algiers Dry Dock & Ship Repair Co., New Orleans, is reported planning the construction of a floating drydock.

The Joyce-Watkins Co., 332 South Michigan avenue, Chicago, plans to establish a barge building plant at Paducah, Ky.

New Trade Publications

CRANES AND HOISTS—The Northern Engineering Works, Detroit, is circulating a small 16-page illustrated booklet in which various installations of its cranes and hoists are shown. These include electric cranes, electric hoists, air hoists, air jacks, hand-power cranes, jib and pillar cranes, monorail trolleys, grab-bucket cranes, stacking cranes, gantries, etc.

ELECTRIC HOISTS—A 4-page illustrated bulletin has been published by the Sprague Electric Works of the General Electric Co., Schenectady, N. Y., in which electric hoists with worm drive are described. Some of the features cited include totally enclosed gears, automatic lubrication, roller bearing motor, accessibility, worm drive, electric motor brake, drum-type control and automatic stop. Capacities of these hoists range from one-half to one ton. They have a speed of 25 feet per minute and a lift of 20 feet. Either direct or alternating current may be used.

METALLIC PACKING—Development, uses and correct application of metallic packing to modern equipment is pointed out in a 78-page illustrated booklet recently published by Crane Packing Co., Chicago. While the booklet essentially is a catalog the material in it also was prepared to assist the operating engineer more fully to understand packing problems and point out the way by which some of these problems can be overcome. The information given is valuable and interesting. The treatise was prepared by Julian N. Walton.

LIQUID FUEL BURNING—F. J. Ryan & Co., Philadelphia, has published an 8-page folder in which liquid fuel burning for the generation of steam is discussed and liquid fuel burning equipment is described and illustrated. The equipment includes steam atomization burners, air jet burners, steam mechanical burners and a type of burner manufactured by the company. In operation of the latter burner, the oil passes finally through currents of air coming both from the outside cone and through the center. The mixing effect caused by the flow and expansion of the air results in a combined mixture which passes out of the burner in a whirling spray ready for combustion. Other details of construction and operation are given.

CONTOUR MEASURING PROJECTOR—Bausch & Lomb Optical Co., Rochester, N. Y., has published a 20-page illustrated booklet in which a contour measuring projector is described and illustrated. According to the booklet this projector will be found useful by manufacturers of gages, all kinds of threaded work and a great variety of formed work, such as gears or form cutters. With this instrument one is able to measure the lead of a thread gage from thread to thread or over a number of threads to an accuracy of 0.0001 inch. It also checks the root, crest and angle of thread, and the included angle as well as the leaning angle can be measured to within 10 minutes of arc. Other uses are pointed out in the booklet.